

THIRD EDITION

ACCOUNTING ESSENTIALS FOR HOSPITALITY MANAGERS

CHRIS GUILDING

Accounting Essentials for Hospitality Managers

For non-accountant hospitality managers, accounting and financial management is often perceived as an inaccessible part of the business, yet understanding it is crucial for success. Using an “easy-to-read” style, this book provides a comprehensive overview of the most relevant accounting information for hospitality managers. It demonstrates how to organise and analyse accounting data to help make informed decisions with confidence.

With its highly practical approach, this third edition:

- quickly develops the reader’s ability to adeptly use and interpret accounting information to further organisational decision making and control;
- demonstrates how an appropriate analysis of financial reports can drive your business strategy forward from a well-informed base;
- develops mastery of the key accounting concepts through financial decision making cases that take a hospitality manager’s perspective on a range of issues;
- sets financial problems in the context of a range of countries and currencies;
- includes two new chapters concerning managerial finance issues and revenue management;
- includes accounting problems at the end of each chapter, to be used to test knowledge and apply understanding to real-life situations;
- offers extensive web support for tutors and students, providing explanation and guidelines for instructors on how to use the textbook and examples, PowerPoint slides, solutions to end of chapter problems, and student test bank and additional exercises.

This book is written in an accessible and engaging style, and is structured logically with useful features throughout to aid students’ learning and understanding. It is an essential resource for all future hospitality managers.

Chris Guilding is Professor of Hotel Management in the Department of Tourism, Leisure, Hotel and Sport Management at Griffith University, Australia. His teaching specialism is in management accounting and he has taught on the MBA, Masters in Hospitality Management, Professional Golfers Association, Australian Institute of Company Directors Course and undergraduate programmes.

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Third edition

Chris Guilding

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Preface

Welcome to *Accounting Essentials for Hospitality Managers*. This is the third edition of the book, although the book's first edition was entitled *Financial Management for Hospitality Decision Makers*. The re-titling of the book resulted from a concern that the words "financial management" convey a particular meaning to many accounting and finance academics. This meaning suggests a curriculum that encompasses corporate finance topics such as the cost of capital and capital structure. Such topics would be of interest to finance specialists working in the corporate head office of large hotel chains. They are not particularly pertinent, however, to managers operating at the hotel property level. This book is concerned with the key accounting tools and techniques that facilitate effective management in a hotel property. Hence the words "accounting" and "essentials" are included in the new title.

This edition of the book contains two new chapters: [Chapter 15](#), which is concerned with financial management topics not addressed elsewhere in the book, and [Chapter 16](#), which provides an accounting perspective on revenue management, which has become an increasingly important facet of hotel management in recent years. The number of problems appearing at the end of each chapter has also been expanded to a minimum of 12. For each chapter, solutions for the first three problems are provided at the back of the book. This is a self-help feature designed to further facilitate learning and enable students to review their understanding of concepts covered by the book.

The current era of growth and dynamic change in hospitality signifies that it is an exciting time to be involved with the industry. Like many other industries, the hospitality sector is experiencing heightened levels of competition and a growing need to apply appropriate management techniques to ensure commercial success. These factors increasingly signify that a hotel manager needs a working knowledge of accounting tools, techniques and procedures.

From my experience as an instructor of accounting generally, and hospitality management accounting in particular, I have found students tend to approach their first class with a degree of trepidation and an expectation that the subject will be dry and difficult to master. Through this book, I endeavour to make the subject material accessible and to demonstrate the relevance of accounting to all hotel managers in all but the smallest hotels. Recognition of the way that accounting can be usefully applied by the modern manager is a critical factor that

can stimulate a student's desire to master the material covered. Once relevance is appreciated, the student starts to explore the range of ways in which accounting can serve the hospitality manager.

The approach to topics covered has been designed to maximise the reader's sense that they are quickly mastering key accounting concepts. Such mastery will help the reader develop the courage to demand excellence of the hotel's accounting department where he or she works. This is a key step in the design of a quality accounting system. Too frequently, managers are "turned-off" by accounting jargon and the way accounting reports are presented. It is an unfortunate reality that accounting reports frequently appear to be designed by accountants for accountants. This problem is partially attributable to the fact that most qualified accountants have gained their qualification through demonstrating their understanding of the rules of external reporting (i.e., financial accounting, which is the branch of accounting concerned with the preparation of annual accounts for external parties, such as shareholders). When providing accounting information to managers within the hotel, however, reports should be designed with the decision making needs of the managers in mind. Hotel accounting systems can be greatly improved if managers play an active role in ensuring that accounting reports developed for their use are designed to be of maximum relevancy and are structured in a format that facilitates easy interpretation and use.

The book has been written with two specific audiences in mind. Firstly, it can serve as a valuable self-help tool for the practising hospitality manager interested in improving their appreciation of accounting techniques and procedures. Secondly, it has been designed to serve as a text that can be used in an accounting course in a hospitality-related programme of study. While the depth of the material covered signifies it would serve well as a stage two text, it can certainly be used in a first year of study, as no prior study of accounting is presumed.

In my view, not only can a well-designed book meet the needs of both the practitioner and student audiences, a well-balanced book is likely to result from addressing the needs of both audiences. Addressing the practising manager audience ensures that the book imparts information that is relevant to today's hospitality manager in a direct and readily accessible style. The reader will be able to quickly see the wood from the trees and gain an early appreciation of how concepts introduced can be applied in practice. Addressing a student audience ensures that the material covered provides a broad foundation. The problems provided at the end of each chapter give students the chance to practice applying issues raised in the chapters and also to gain exposure to the type of problems that can be encountered in examination situations. A review of these problems will also prove extremely beneficial to the practising manager, as deeper understanding of the material covered in the text will result from exposure to a range of real world decision making scenarios.

A distinctive aspect of the book is its international orientation. The hospitality industry is becoming increasingly international with large multi-national chains dominating the 5 and 4 star market segments. This factor, together with the drawing together of countries to form economic alliances such as the European

Economic Union signifies that a hotel manager's career path can involve some international work experience. Further, the clientele base of hotels is becoming more international as a result of increased international business and tourist travel. In combination, these factors highlight the need for a book that views hospitality accounting in a globalised context. Scenarios introduced and problems posed will draw on a range of international settings. This will develop the reader's familiarity with addressing financial problems in the context of a range of countries and currencies.

A second distinctive aspect of the book is its hospitality decision makers' orientation. This theme will be apparent from the problem solving approach used throughout the text. In each chapter this approach is reinforced by the inclusion of a case that takes a particular hospitality manager's perspective on an issue raised. Each of these cases is headed "Financial decision making in action" or "Financial control in action" and has a sub-heading relating to the hotel function and also the aspect of accounting in question.

The book can be viewed as comprising four main parts. After the introductory chapter, [Chapters 2 to 5](#) focus on financial accounting. [Chapters 6 to 12](#) focus on management accounting, [Chapters 13 to 15](#) focus on financial management issues and [Chapter 16](#) concerns revenue management. Each part can be approached independently of the other parts, i.e., if the reader is exclusively interested in management accounting, they can commence their reading at [Chapter 6](#) or [Chapter 7](#).

In [Chapter 1](#), in the course of providing an overview of the nature of accounting, the contents of the book are introduced. [Chapters 2, 3 and 4](#) build on one another to provide a grounding in financial accounting. While financial accounting does not represent the primary orientation of the book, a basic understanding of the workings of the financial accounting system can be highly beneficial to the hospitality manager, due to the importance of financial statements such as the balance sheet and income statement. It is difficult to overstate the importance of these statements as they represent a key resource used by outsiders to gauge an organisation's performance. The need for management to understand the mechanisms by which they are judged externally is clearly important. [Chapter 5](#) provides a structured approach that can be taken to analysing the statements produced by the financial accounting system.

[Chapters 6–16](#) have more of an internal (i.e., within a hotel) orientation. [Chapter 6](#) outlines significant internal control challenges that arise in hotels and describes procedures that can be implemented to counter these challenges. [Chapters 7–16](#) consider hospitality management decision making from the following perspectives:

- Classifying costs in order to facilitate decision making,
- Using cost-volume-profit analysis,
- Applying budgeting and responsibility accounting,
- Applying flexible budgeting and variance analysis,
- Designing appropriate performance measurement systems,

Preface

- Drawing on cost information to inform pricing decisions,
- How optimal decisions can be made with respect to working capital (i.e., cash, accounts receivable, inventory and accounts payable management),
- What financial techniques can be used in investment appraisal,
- How operating and financial leverage can be manipulated to increase net profit,
- What revenue management steps can be taken in an effort to increase total revenue.

The book has been designed to facilitate a flexible teaching and learning approach. While the sequencing of the chapters results from my view of the most appropriate order in which to present the material covered, many of the chapters can be read out of sequence. The only chapters that build on one another to such a degree that they should be read consecutively are [Chapters 2, 3 and 4](#) and [Chapters 9 and 10](#).

Should you have any suggestions in connection with how the book could be further strengthened in the next edition, it would be a pleasure to hear from you. Please contact me at my email address noted below.

I hope you find this book to be a stimulating read and that your career benefits from you gaining an enhanced appreciation of the merits of applying appropriately chosen accounting techniques and procedures in hospitality management.

Finally, I would like to thank the publisher, *John Wiley and Sons* for allowing me to draw some of [Chapter 6](#)'s material from the following book:

The Key Elements of Introductory Accounting, Guilding C., Auyeung, P. and Delaney, D.; John Wiley and Sons Australia Ltd; © 2006, 3rd edition; Reprinted with permission of John Wiley & Sons Australia.

Chris Guilding
c.guilding@griffith.edu.au

Chapter 1

Introduction: hospitality decision makers' use of accounting

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. the accounting implications of key hospitality industry characteristics,
2. the nature of accounting and financial management,
3. some of the ways hospitality managers become involved in accounting,
4. what is meant by the “*Uniform System of Accounts for the Lodging Industry*”,
5. the basic differences between sole proprietorships, partnerships and companies,
6. the focus of this book.

1) Introduction

This book describes accounting and financial management procedures and analytical techniques in the context of hospitality decision making. The purpose of this introductory chapter is to set the scene for the remainder of the book.

The first section of this chapter describes key characteristics relating to the hospitality industry and outlines accounting implications associated with these characteristics. Then, an overview of the nature of accounting is provided. In the course of describing the nature of accounting, the overall structure of the book will be introduced. We will see that [Chapters 2–5](#) provide a grounding in hospitality financial accounting. [Chapters 6–12](#) introduce a range of topics relating to management accounting and will show how management accounting techniques and procedures are critically important to a host of hospitality decision making situations. [Chapters 13–15](#) focus on managerial finance issues and [Chapter 16](#) provides a financial perspective on revenue management.

This chapter's subsequent section highlights some of the many ways that different hospitality managers can apply accounting techniques and procedures to inform their decision making. The following section introduces an important accounting report: the income statement. This statement is introduced in the context of a description of the *Uniform System of Accounts for the Lodging Industry*. This system was developed in the US and is being

increasingly used in large hotels internationally. This signifies increased standardisation of the classification scheme used by hotels to record their financial transactions, and also greater standardisation of the financial performance reports produced by hotels. The chapter's final section describes the three main types of commercial organisation: sole proprietorship, partnership, and company.

2) Key characteristics of the hospitality industry

The hospitality industry encompasses a broad range of activities and types of organisation. Some of the industry's particularly visible players include restaurants and bars that provide dining and beverage services and also lodging operations that offer accommodation facilities. Restaurant organisations range from multinational companies to small street corner cafés. Similarly, lodging operations range from multinational hotels offering thousands of rooms worldwide to bed and breakfast operations offering a single guest room. At the bed and breakfast extreme, we have small family-run concerns with a limited service range, while at the other extreme we have multinational companies offering a range of services that include accommodation, dining and frequently conference, sports and leisure facilities. The hospitality industry's heterogeneity becomes apparent when we recognise that its diversity encompasses the following:

- Hotels
- Motels
- Restaurants
- Fast food outlets
- Pubs and bars
- Country and sport clubs
- Cruise liners.

This book is primarily focused on hotel management. This focus has been taken because the majority of large hotels provide most of the service elements offered by the hospitality organisations listed above. In addition, as many large hotels have to co-ordinate provision of a range of hospitality services under one roof, they confront a degree of management complexity not encountered in many other hospitality organisations that offer a narrower range of services. For example, a large hotel's organisational structure and accounting system must be designed with due regard given to co-ordinating a range of disparate functions that, in most cases, will at least include the provision of accommodation, restaurant and bar facilities. The disparity of these functions is apparent when we recognise that the sale of rooms can be likened to the sale of seats in the airline or entertainment industries, a parallel exists between food preparation in restaurant kitchens and production activities in the manufacturing industry, and bar operations can be likened to retailing. In addition to managing this disparate range of services, a hotel needs to co-ordinate a set of distinct support activities such as laundry, building and grounds maintenance, information systems, training, marketing, transportation, etc.

This disparate range of hospitality activities is housed within a single site (i.e., building and surrounds), that we refer to as a hotel. This creates a degree of site complexity which is exacerbated when we recognise that the location of the service provider is also the place where the customer purchases and consumes the services offered. While this is patently obvious to anyone who has been to a hotel, we should not forget that it is not the case in many other service industries (e.g., banking, transportation, telecommunications, law, accounting), or the manufacturing industry. This factor highlights a further dynamic of the hotel industry. Not

only is a hotel site the place where a broad range of activities are undertaken, it is the focal point of extensive and continual vigilance with respect to cleaning, maintenance and security. We can thus see that a hotel represents a complex site where distinct activities are conducted in close proximity to one another. Where the performance of one functional activity (e.g., cleaning) can be affected by the way another is conducted (e.g., maintenance), high interdependency is said to exist. Such high interdependency can create problems when attempting to hold one functional area (e.g., cleaning) accountable for its performance.

Not only is functional interdependency an issue when trying to hold a manager accountable for costs, it can be a problem when attempting to hold a manager responsible for a particular department's level of sales. For example, through no fault of her own, a food and beverage (F&B) manager may see her profits plummet as a result of a relatively low number of rooms sold by the rooms division. Such cross-functional interdependency needs to be recognised when identifying what aspect of a hotel's performance a particular manager should be held accountable for.

Sales volatility

The hotel industry experiences significant sales volatility. The extent of this volatility becomes particularly apparent when we recognise it comprises at least four key dimensions:

- economic cycle volatility,
- seasonal sales volatility,
- weekly sales volatility,
- intra-day sales volatility.

These dimensions of sales volatility and the implications they carry for hotel accounting are elaborated upon in [Box 1.1](#).

Box 1.1

Dimensions of sales volatility in the hospitality industry

- 1) **Economic cycle volatility:** Hotels are extremely susceptible to the highs and lows of the economic cycle. Properties with a high proportion of business clients suffer during economic downturns due to significantly reduced corporate expenditure on business travel. Hotels offering tourist accommodation also suffer during economic downturns due to families reducing discretionary expenditure on activities such as holidays and travel. This high susceptibility to the general economic climate highlights the importance of hotels developing operational plans only once careful analysis has been made of predicted economic conditions.
- 2) **Seasonal sales volatility:** Many hotels experience seasonal sales volatility over the course of a year. This volatility can be so severe to cause off-season closure for some resort properties. The decision whether to close

should be informed by an appropriately conducted financial analysis such as that described in [Chapter 7](#). Seasonal sales volatility can also pose particular cash management issues. During the middle and tail-end of busy seasons, surplus cash balances are likely to result, while in the off-season and the build up to the busy season, deficit cash balances are likely to arise. The need for careful cash planning and management is discussed in [Chapter 13](#).

- 3) **Weekly sales volatility:** Hotels with a high proportion of business clients will experience high occupancy (i.e., a high proportion of rooms sold) from Monday to Thursday, and a relatively low occupancy from Friday to Sunday. By contrast, many resort hotels have relatively busy weekends. As will be seen in [Chapter 16](#), accurate forecasting of demand will inform management's decision making with respect to the amount and timing of room rate discounting. Forecasting is also discussed in the context of budgeting in [Chapter 9](#).
- 4) **Intra-day sales volatility:** Restaurants experience busy periods during meal times, while bars tend to be busiest at night times. This intra-day demand volatility has led to widely-used pricing strategies such as "early bird specials" in restaurants and "happy hours" in bars. Hotel pricing issues are discussed in [Chapters 12](#) and [16](#). In addition to these dimensions of intra-day sales volatility, staffing needs have to be considered in light of issues such as the front desk experiencing a frenetic early morning period processing check-outs and a second, more protracted, busy period in the late afternoon processing check-ins.

High product perishability

Relative to many other industries, there can be limited scope to produce for inventory in food-service operations. A significant proportion of food inventory is purchased less than 24 hours prior to sale, and much food preparation is conducted within minutes of a sale. There is thus a very short time span between order placement, production and sale. Many menu items cannot be produced in advance of sales due to their high perishability.

Perishability is even more apparent with respect to room and banquet sales. In these contexts, perishability can be described as "absolute", as, if a room is not occupied on a particular night, the opportunity to sell that room that night is lost forever. No discounting of a room's rate the following day can reverse this loss. This situation also applies to conference and banqueting activities. The high perishability associated with rooms, conferencing, banqueting and food underlines the importance of accurate demand forecasting. With respect to food, an accurate forecast of the mix and level of demand can result in the maintenance of all options on a menu during high demand periods, and minimal cost of food scrapped during low demand periods. With respect to rooms, an accurate forecast of room demand can enable appropriate pricing decisions to be made as part of an attempt to maximise revenue. Appropriate room demand management is particularly important, as

room sales can be the prime driver of sales of many of a hotel's other services (e.g., restaurant, bar, etc.).

High fixed component in cost structure

A high proportion of a hotel's costs do not vary in line with sales levels. These costs are referred to as "fixed". The high fixed cost structure of hotels results from rent (a significant investment is required to buy land and build a hotel), as well as fixed salary costs associated with administrative and operational staff needed to manage, operate and maintain a hotel. The high proportion of fixed costs signifies that an important issue in hotels concerns the determination of the level of sales necessary to achieve breakeven (i.e., cover all fixed costs).

A considerable proportion of fixed costs result from periodic refurbishment of rooms and also investment in the hotel's physical infrastructure such as kitchen and laundry equipment. In accounting, we refer to such long-held assets of the organisation as "fixed assets". In [Chapter 4](#) we will see how the purchase of a fixed asset results in depreciation (the allocation of a fixed asset's cost over its useful life), and in [Chapter 14](#) techniques that can be used to appraise fixed asset investment proposals are described.

Labour intensive activities

If you visit the typical modern factory, you are likely to be struck by the highly automated and capital-intensive nature of the production process. Procedures are scheduled by computers and robotic engineering is used extensively in physical processing. This capital intensity in the conduct of work lies in stark contrast to what you see when entering a hotel. Major hotel activities include room housekeeping, restaurant food preparation and service as well as bar service. Despite the advent of the machine and computer age, the physical conduct of all of these activities has changed little over the last fifty years. They continue to have a high labour component. Relative to many other industries, we can conclude that activities conducted in the hotel industry are still highly labour intensive.

This high labour intensity highlights the need to develop performance measures that monitor labour productivity. Performance indicators such as restaurant sales per employee hour worked are described in [Chapters 5](#) and [11](#). In addition, the need to analyse the difference between the actual cost of labour and the budgeted cost of labour can represent a significant dimension of labour cost management. In [Chapter 10](#) we will see how differences between budgeted and actual labour cost can be segregated into labour rate and labour efficiency variances.

The distinctiveness of these hotel characteristics that have just been described underlines the degree to which hotel accounting systems need to be tailored to the particular needs of hotel management. In combination, these characteristics signify that a hotel represents a fascinating arena in which to consider the application of accounting. [Box 1.2](#) provides a summary of accounting implications associated with each of the hospitality industry characteristics just described.

Box 1.2

The accounting implications of distinctive hospitality industry characteristics

Hospitality Industry Characteristic	Accounting Implication
1. Disparity and interdependency of functions	Care must be taken when determining a functional area's scope of accountability. Due to their influence on sales and expenses, some managers can be held profit accountable (e.g., a restaurant manager). Due to no direct influence on sales, others can only be held cost accountable (e.g., a training manager). Factors affecting departmental performance can be complex in hotels, however. If room occupancy affects F&B sales, care must be taken if attempting to hold an F&B manager profit accountable.
2. High sales volatility	Hotel activity can be highly volatile over the course of an economic cycle, a year, a week, and a day. As noted in Box 1.1 , this issue highlights the importance of accurate budgeting and forecasting systems to aid discounting decisions with respect to room rates and restaurant menu prices.
3. High product perishability	The absolute perishability of rooms, conference and banquet services and the relative perishability of food underlines the importance of accurate hotel demand forecasting as part of the budgeting process. Generally, the most important aspect of forecasting is room occupancy, as room sales drive the sales levels of other hotel activities. Accurate restaurant forecasting provides the basis for maintaining a full menu of options and minimising the cost of food wastage. With respect to rooms, forecasting accuracy can enable appropriate room rate discounting decisions.
4. High fixed costs	Hotels involve considerable investment in fixed assets such as buildings on prime land as well as extensive furnishings, fittings and equipment. This investment generates high rent and depreciation cost (discussed in Chapter 4), which, together with significant salary costs, result in hotels having a high fixed cost structure. High investment highlights the importance of using appropriate financial analysis when appraising the relative merits of proposed investments.
5. Labour-intensive activities	The high labour intensity apparent in many hotel activities highlights the importance of monitoring differences between actual labour cost and budgeted labour cost and also using performance measures that focus on labour productivity.

3) Accounting and business management

Accounting is often referred to as the “language of business”. Accounting concerns information systems that record business activities in financial terms and consolidate the information recorded to produce reports that convey a business’s financial achievements to decision makers such as managers and shareholders. Two distinct arms are evident in accounting: financial accounting and management accounting.

Financial accounting concerns the preparation of financial reports for external users such as shareholders, banks and government authorities. In order for these financial reports to be meaningful, it is important that they are produced in a standardised way and are seen to be reliable. Consider the implications arising if investors lost faith in the reliability of accounting reports produced by companies. As financial accounting reports represent a key source of information used by the investing community when deciding whether to buy a company’s shares, a lack of confidence in accounting systems would translate into a sense of deficient information and a reluctance to invest. This would inhibit the ability of economically viable companies to expand, which in turn would carry negative implications for employment, availability of goods and services, and our standard of living. For the sake of a healthy economy, it is therefore critically important that a reliable financial accounting system that engenders trust in reported data is established. The importance of reliability in financial reporting is a significant factor that lies behind the considerable resources expended in connection with auditing company accounts. This book provides an introduction to the basics of financial accounting, to provide hotel managers with an appreciation of the financial accounting reporting process and the ability to conduct an informed analysis of the statements produced by the process.

Management accounting concerns the provision of financial information to internal management. This information is designed to help managers in their decision making and control of businesses. Financial information sought by hotel managers includes determining the cost of providing a meal to inform the menu pricing decision, determining how many delegates need to attend a conference in order to achieve breakeven, and determining what level of profit is made by each selling unit of a hotel to inform any rationalization decision to close down a unit. The provision of all these types of financial information falls within the scope of management accounting. In addition to introducing the basics of financial accounting, this book describes management accounting and tools and techniques that can aid hospitality managers in their efforts to ensure efficient and effective management of resources.

For most organisations, the accounting system represents the most extensive and all-encompassing information system. This is because accounting information is based primarily on the most fundamental common denominator in business, i.e., money. A front office manager might talk of the number of check-ins processed, a restaurant manager may talk of the number of covers served, a laundry manager may talk of the weight of linen processed and a housekeeping manager may talk of the number of rooms cleaned. While each manager refers to different operational factors when talking of their respective activities, they are all familiar with the terms “cost” and “profit”. Cost and profit are denominated in monetary terms and this underlines the degree to which the accounting system is the organisation’s most pervasive and all-encompassing information system. It is also the only information system that measures the economic performance of all departments within an organisation. When we recognise the pervasive nature of the accounting information system and the fact that we are living in a time that is frequently described as “the information age”, we begin to appreciate the critically significant role of accounting in promoting effective business management.

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Individuals from different functional areas should play an active accounting role by demanding excellence in the design of accounting systems. We sometimes need to remind ourselves that accounting system design is too important to be left solely to accountants. Specific accounting information needs that fall outside the scope of conventional accounting system design will have to be flagged by managers with decision making and control responsibilities. There is boundless scope for tailoring an accounting information system, however the onus is on managers to inform the accounting service providers how the information provided should be tailored to meet their decision making needs.

In the last few years, there appears to have been a strong movement away from accounting's traditional "command and control" philosophy to more of an "inform and improve" philosophy. Despite this, some question the appropriateness of using financial measures to direct and control businesses. Criticisms include:

- Financial measures focus on symptoms rather than causes. Profit may decline because of declining customer service. It might therefore be more helpful for management to focus on monitoring the quality of customer service delivery, rather than profit.
- Financial measures tend to be oriented to monitoring past short-term performance. This can hinder forward-looking, longer-term initiatives such as a quest to develop a strong hotel chain image amongst customers.

Some of these criticisms have led to greater importance being attached to a breadth of financial and non-financial performance indicators, e.g., Kaplan and Norton talk of the "Balanced Scorecard" (Kaplan and Norton 1996). Developing a mix of financial and non-financial performance measures in the context of a balanced scorecard management approach is discussed in [Chapter 11](#). Despite such developments, given the importance attached to published financial statements by the investing community, continued management emphasis on financial controls is to be expected.

[Chapters 2, 3, 4 and 5](#) provide a progressive introduction to the workings of financial accounting systems. In [Chapter 2](#) we will see how, like a coin, a financial transaction has two sides. These two sides signify that all financial transactions have a double impact on the business. In [Chapters 3 and 4](#) we will see how the two sides of the "financial transaction coin" are referred to as debits and credits. It is important that you gain an understanding of the double entry bookkeeping system as it is a fairly fundamental aspect of accounting. An analogy can be drawn between the manner in which knowing the alphabet serves reading and writing and the way in which an appreciation of the double entry accounting system will aid your capacity to exercise appropriate financial management. Once you have mastered the basics of double entry accounting, you will have a grounding that will allow you to begin considering how accounting information can be tailored to the specific financial decision making needs that arise in a hotel. It is from the information stored in the double entry accounting system that an income statement (profit and loss statement) and balance sheet are periodically prepared. These statements, which represent key indicators of an organisation's financial health and performance, are also described in [Chapters 2 and 3](#). [Chapter 5](#) provides an overview of how year end financial accounts can be analysed.

The book's subsequent chapters have more of a management decision making and control orientation. The management issues addressed concern: the importance of internal control in hotels and what steps can be taken to strengthen internal control ([Chapter 6](#)), facilitating decision making and control through cost analysis and management ([Chapters 7 and 8](#)), responsibility accounting and budgetary control ([Chapters 9 and 10](#)), performance measurement ([Chapter 11](#)), using cost information to inform pricing decisions ([Chapter 12](#)), managing

elements of working capital such as cash, accounts receivable, inventory and accounts payable ([Chapter 13](#)), and conducting financial analyses of investment proposals ([Chapter 14](#)). [Chapter 15](#) reviews a range of managerial finance issues and [Chapter 16](#) provides a financial perspective on revenue management.

4) Accounting and hospitality decision makers

A theme of this book concerns viewing accounting from a range of different hospitality management functional perspectives. This theme will be evident from the book's many worked examples that show how particular accounting applications are pertinent to a broad array of hospitality management decision making situations that can arise. To underline the theme still further, however, each chapter contains a particular case that shows how an accounting issue raised in the chapter can be considered from a particular hotel function's perspective. Each case is headed "Financial Decision Making in Action" or "Financial Control in Action" and has a sub-heading relating to the hotel function and also the aspect of accounting in question.

To provide you with an early sense of the importance of accounting to a range of hospitality decision makers, an overview of these cases is provided in [Box 1.3](#). The particular hospitality functions identified are based on Burgess' (2001) listing of the typical membership of an executive committee in a large leisure hotel.

Box 1.3

Perspectives of hospitality decision makers on aspects of accounting

Hotel Function	Accounting aspect or tool	Significance of the accounting aspect or tool
General Manager	A general manager needs to understand the nature and workings of the main financial statements. Many managers incorrectly believe that asset values recorded in the balance sheet represent the assets' worth (see Chapter 2).	Senior managers are increasingly benchmarking the performance of hotels within chains. Real estate inflation rates need to be considered if conducting an analysis using asset values of hotels bought in different time periods. This is because balance sheets report historical cost and not current value of assets.
	Senior managers with no accounting training also sometimes incorrectly believe that the retained earnings account in the balance sheet represents cash that can be accessed (Chapter 3).	Retained earnings is frequently a large account appearing in a balance sheet. It represents the accumulation of all profits reinvested in the hotel since its inception. Poor cash planning will occur if senior management believe it represents cash.

Hotel Function	Accounting aspect or tool	Significance of the accounting aspect or tool
Rooms Division Manager	The Rooms Division Manager can use cost-volume-profit analysis to determine occupancy levels necessary to achieve breakeven (Chapter 8).	Appreciating the dynamics of breakeven will help a Rooms Division Manager take steps to ensure that sales do not fall below the breakeven level.
	Variance analysis is a tool that can help a range of managers, including the Rooms Division Manager, when investigating differences between budget and actual performance (Chapter 10).	Appraising the efficiency of activities such as room cleaning represents an important and on-going aspect of management. Variance analysis is a technique that helps a manager determine the factors causing room cleaning costs to be above or below budget.
F&B Manager	What type of inventory recording system should be used? (Chapter 4).	If stock loss represents a problem in F&B, a perpetual rather than a periodic system may be warranted.
	Appropriately using cost information to support decision making such as whether to outsource (Chapter 7).	Hotels are increasingly outsourcing, and managers need to know how to correctly draw on cost data when making such decisions.
Small hotel owner	Periodic preparation of bank reconciliation statements (Chapter 6).	An important step in seeking internal control over cash involves reconciling the difference between a bank account balance per a bank statement and the balance per a business's records.
Human Resource Manager	Determining staffing needs from budgeted sales levels (Chapter 9).	In light of the hospitality sector's volatility, matching labour supply with hotel activity is an important aspect of human resource management.
Financial Controller	Analysing return on investment (ROI) to identify poor performing areas of a hotel (Chapter 5).	As ROI is a comprehensive indicator of performance, it is key that managers understand what factors drive ROI.

	Applying an appropriate financial analysis when deciding whether to take a supplier's offer of a discount for early payment (Chapter 13).	Many suppliers offer a discount for early settlement of an account. In light of this, it is important that the accounts payable department is appropriately informed on when to make an early payment.
	Use of debt financing to lever up returns to shareholders (Chapter 15).	Appropriate use of debt finance can have a significant impact on returns earned by shareholders.
Senior Management	Performance measurement system design (Chapter 11).	It is often said that what gets measured is what gets managed. This highlights the importance of carefully determining what should be measured in a hotel's performance measurement system.
Sales & Marketing Manager	The use of revenue management in pricing (Chapters 12 and 16).	Demand volatility highlights the importance of sales staff varying room rates charged through the year as part of a strategy to maximise profit.
Chief Engineer	Financial analysis of investment proposals (Chapter 14).	Chief Engineers are key players in building equipment investment decisions. Appropriate investment analysis is vital, as these decisions often involve large amounts of money.

5) Uniform system of accounts

There is a uniform accounting system for the hotel industry that has been developed in the US. It was initiated in 1925 by the Hotel Association of New York City. Application of this uniform system has grown in the US and it is now increasingly used across the world. The current version of the uniform system, entitled the “*Uniform System of Accounts for the Lodging Industry*” (USALI), was produced in 2006 by the American Hotel & Lodging Educational Institute. The following significant benefits derive from this uniform system:

- it represents an “off the shelf” accounting system that can be adopted by any business in the hotel industry,
- the system can be viewed as “state of the art” as it benefits from the accumulated experience of the parties that have contributed to the system’s development over many years,

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- by promoting consistent account classification schemes as well as consistent presentation of performance reports, it facilitates comparison across hotels,
- it represents a common point of reference for hotels within the same hotel group.

A profit report for Canberra's KangarooLodge Hotel is presented in [Exhibit 1.1](#). This statement is presented in a format consistent with *USALI*. While increased accounting international standardization has resulted in this statement being officially titled an "income statement", in much of the English-speaking world, many managers continue to refer to the statement as a "profit and loss (P&L) statement".

Exhibit 1.1

Summary Income Statement prepared in *USALI* format

KangarooLodge Hotel Summary Income Statement For the year ended 30 June 20X1

	<u>Net Revenue</u>	<u>Cost of Sales</u>	<u>Payroll and Related Expenses</u>	<u>Other Expenses</u>	<u>Income (loss)</u>
Operated Departments					
Rooms	\$ 1,232,000	\$ 0	\$ 193,000	\$ 101,000	\$ 938,000
Food	404,000	171,000	159,000	48,000	26,000
Beverage	221,000	54,000	58,000	27,000	82,000
Telecommunications	<u>64,000</u>	<u>59,000</u>	<u>4,000</u>	<u>2,000</u>	<u>(1,000)</u>
Total Operated Departments	1,921,000	284,000	414,000	178,000	1,045,000
Undistributed Operating Expenses					
Administrative and General			51,000	28,000	79,000
Sales and Marketing			25,000	36,000	61,000
Property Operation and Maintenance			29,000	6,000	35,000
Utilities (energy, water, etc)			<u>0</u>	<u>79,000</u>	<u>79,000</u>
Total Undistributed Operating Expenses			<u>105,000</u>	<u>149,000</u>	<u>254,000</u>
Gross Operating Profit					<u>791,000</u>
Rent, Rates and Insurance					182,000
Depreciation					<u>123,000</u>
Net Operating Income					486,000
Interest Expense					<u>102,000</u>
Income Before Tax					384,000
Tax					<u>110,000</u>
Net Income					<u>\$ 274,000</u>

The income statement provided in [Exhibit 1.1](#) shows the sources of a hotel's revenue and also the nature of its expenses. By deducting expenses from revenue, we find a hotel's profit, which is referred to as "income" in the statement (see the statement's last line). To be consistent with international accounting standards, in income statements presented in this book, the term "income" will be used when referring to profit. However, to reflect the reality of language used by many managers in everyday business settings, the word "profit" will also be used extensively in the text.

The *USALI* income statement comprises three sections. In the top section, net revenue (i.e., net sales) for each functional area is identified in the first data column. This is followed by three columns that identify expenses that can be directly related to the departmental areas listed, i.e., cost of sales, payroll and related expenses, and other expenses. Cost of sales refers to the cost of items that are sold, e.g., the cost of wine sold through a restaurant. Each department's income (profit) is determined by deducting the sum of the three expense items from net revenue. The statement's middle section is headed "undistributed operating expenses". In this section the expenses relating to a hotel's service departments (e.g., administrative and general, sales and marketing, etc.) are identified. The distinction between a hotel's service departments and the departments listed in the top section of the statement is that no revenue can be traced directly to the service departments. The statement's lower section includes expenses that are generally not traceable to a hotel's operating management. Expenses such as rent, insurance and interest on debt are generally traceable to a tier of management that lies above a hotel's operational staff. The last line of the statement presents the net income (profit), i.e., all hotel revenue minus all hotel expenses.

It is apparent from [Exhibit 1.1](#) that an income statement presented in accordance with the *USALI* provides much profitability information at the hotel department level (e.g., rooms, food, beverage department, etc.). This format supports financial management, as it allows a hotel's managers to consider the relative profitability levels of its different functional areas, e.g., from [Exhibit 1.1](#), it can be determined that following the deduction of expenses directly related to rooms, 76.14 per cent of room revenue remains as a contribution to covering general hotel expenses and then providing a profit ($\$938,000 \div \$1,232,000 \times 100$).

The *USALI* has been introduced in this first chapter in order to give you an early appreciation of a typical hotel's income statement. Your understanding of the nature of the income statement will be reinforced in the next chapter which, amongst other things, focuses on the relationship between the income statement and the balance sheet.

6) Organisational forms

There is some variation in accounting terminology used across different forms of commercial organisation. As shown in [Exhibit 1.2](#), there are three main types of commercial organisation: (1) sole proprietorship, (2) partnership, and (3) company. An appreciation of each type of organisation will help you develop your understanding of how accounting terms are used in different business forms.

Exhibit 1.2**Key differences across organisational forms**

Characteristics	Sole proprietorship	Partnership	Company
Number of owners	One	Two or more	Generally many
Business size	Small	Generally small	Larger and can be very large
Key decision makers	Owner	Partners	Board of directors
Owner liability	Unlimited	Unlimited	Limited
Organisation life	Limited	Limited	On-going

Sole proprietorships

A sole proprietorship (sometimes called a “sole trader”), is owned by one person. In most cases, the owner also manages the business. Sole proprietorships are the most common type of business, especially in those areas of the economy where we see many small businesses, such as in the restaurant sector.

In legal terms, a sole proprietorship is not really distinct from its owner. This signifies that the owner of a sole proprietorship will report the profit of his or her business as part of their taxable income. It also signifies that a sole proprietorship's owner has to take personal responsibility for all debts of his or her business. This responsibility is generally referred to as “unlimited liability”, as if a sole proprietorship has large debts outstanding, the owner must draw on their personal assets to pay off their business debts. This means that if a sole proprietorship becomes insolvent (has more debts than assets), the owner may lose more than the amount that they originally invested in the business.

Exhibit 1.2 indicates that the life of a sole proprietorship is limited. This is because the sole proprietorship's existence ends at the time that the owner decides to stop operating the business. If the sole proprietorship owner is able to sell their business, the sole proprietorship's life comes to an end, and it will be up to the new owner to decide under what organisational form they will operate their newly acquired business.

Partnerships

A partnership arises when two or more people decide to run a business together. Although partnerships tend to be larger than sole proprietorships, it is not the case that all partnerships are bigger than sole proprietorships. The size of partnerships varies greatly, from a small coffee shop owned by a husband and wife team, right through to large multinational accounting partnerships, such as KPMG or PricewaterhouseCoopers.

Exhibit 1.2 shows that business partnerships have many characteristics similar to sole proprietorships. Like a sole proprietorship, it is the owners (the partners) of a partnership that

tend to be the business's decision makers. Like a sole proprietorship, the life of a partnership is limited, as in most situations, a new partnership is formed every time a new partner is created, or whenever a partner retires from the organisation. Also like sole proprietorships, the owners of a partnership have unlimited liability with respect to the debts of their business. If your partnership is sinking under a weight of debt, you, as a partner, are liable for all of the debts of the business, regardless of what proportion of the business you own. If your partner, who originally invested 75 per cent of the start up funds (widely referred to as "capital") for your partnership, has become personally bankrupt, you will need to pay off all debts of the partnership, even though you only invested 25 per cent of the partnership's initial capital.

A decision to enter a business partnership can be likened to the decision to get married. Just as in a marriage, business partners have to interact extensively with one another. Most successful partnerships are built on the bedrock of a solid and trusting relationship. It can make a lot of sense to team up with a business partner who has a set of complimentary skills. For instance, you may be a great chef with poor business skills and your partner may have great marketing and organisational skills appropriate for running a restaurant. However, just as many marriages that were initially blessed with a happy honeymoon period finish up in a divorce court, experience indicates that business partnerships can quickly turn pear shaped and acrimonious. Be very careful if going into a business, as business partnerships can be like marriage partnerships; they often break down.

Companies

A company is often referred to as a "corporation" in the USA. A company is an artificial entity that is created by law. Unlike sole proprietorships and partnerships, a company is legally distinct from its owners. Companies are run by boards of directors and their existence continues independently of changes in their ownership.

Company ownership works in the following way. The capital raised by a company from its owners is broken into units that we call shares (the word "share" signifies a share in the ownership of a company). It could be that a company originally raised \$1,000,000 of capital from its original owners through the issuance and sale of 500,000 shares that were each initially priced at \$2 each. If you bought 5,000 of these shares for \$10,000, you would in effect own 1 per cent of the company as you would be the owner of 1 per cent of its 500,000 shares. Two years following your purchase of 1 per cent of the initial share offering, you might sell your 5,000 shares on the stock market for \$3 each. You would receive \$15,000 for the sale of your shares and will have made a 50 per cent profit on your original \$10,000 investment. Note, however, that the company will be unaffected by your share sale, as it is really not involved in your second-hand market (that's what a stock market is) sale of your 1 per cent stake in the company.

This description of the sale of a company's shares highlights one of the principle advantages of a company. Owners of a company can relatively easily liquidate their company ownership investment by selling their shares on the stock market. It is much harder to liquidate your business ownership if the business in question is a sole proprietorship or a partnership.

A further distinguishing feature of companies concerns the fact that the liability of owners is limited. Following your purchase of 5,000 shares for \$10,000 that was just referred to, if the company you have invested in were to go bankrupt, the shares that you own might well become worth nothing. So you would lose your \$10,000 invested, but, unlike an owner of a sole proprietorship or a partnership, you would not be required to pay any more money to

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satisfy any outstanding debts of the business. This signifies that your liability is limited to losing no more than your original investment. For this reason, for those companies where this limited liability feature applies, in many countries the company name must conclude with the word “Limited” (widely abbreviated to “Ltd.”).

7) Summary

This chapter has set the scene for the remainder of the book. We have reviewed the particular characteristics of the hospitality industry and considered their implications for accounting. We have also considered the nature of accounting in general and also its relevance to a range of hospitality decision makers. The chapter provided a short introduction to financial accounting by outlining the nature of an income statement presented according to the standard that is generally referred to as the “*Uniform System of Accounts for the Lodging Industry*”. Finally distinctions between the three basic organisational forms were described. The three organisational forms are sole proprietorships, partnerships and companies. All three types of business are well represented in the hotel industry. The small English hotel depicted in the BBC TV comedy series *Fawlty Towers* that is run (perhaps “run” is the wrong word to use given Basil Fawlty’s manic behaviour) by a husband and wife team would likely be a sole proprietorship or a partnership. Large hotel companies such as Hilton Worldwide and the Hyatt Hotels Corporation represent classic examples of American-based international hotel companies. Accor is a company based in France that owns well-known hotel brands such as Novotel and the Mercure.

Having read this chapter you should now know:

- some of the hospitality industry’s particular characteristics and their accounting implications,
- what is meant by accounting and how it relates to financial management,
- some of the ways that different hotel functional areas draw on accounting information and analyses in decision making and control,
- the nature of information provided in an income statement,
- the basic differences between sole proprietorships, partnerships and companies.

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Problems

Problem 1.1

- a) Describe what is meant by functional interdependency.
- b) Describe why functional interdependency is an issue that needs to be considered when designing a hotel's system of accountability.

Problem 1.2

- a) What are the four main dimensions of sales volatility in the hotel industry?
- b) What are the accounting implications arising from these four dimensions of sales volatility?

Problem 1.3

Identify six examples of business decisions requiring the use of accounting information.

Problem 1.4

- a) Describe what is meant by high perishability of the hotel product.
- b) Describe the accounting implications arising from high product perishability.

Problem 1.5

Describe the factors causing hotels to have a high proportion of fixed costs.

Problem 1.6

- a) Describe the manner in which hotel activities tend to be labour intensive.
- b) Describe the accounting implications arising from the high labour intensity of hotel activities.

Problem 1.7

What is the difference between financial accounting and management accounting?

Problem 1.8

Who are the main users of accounting information?

Problem 1.9

Why is it important that financial accounting systems are seen to be reliable?

Problem 1.10

Give one example of how a particular accounting tool or technique might be drawn upon in the context of a particular hospitality management function.

Problem 1.11

Identify three advantages that derive from using the “*Uniform System of Accounts for the Lodging Industry*” (USALI).

Problem 1.12

List the three main forms of commercial organisation and identify the main differences between the forms.

Problem 1.13

In the context of a new business starting up, what is meant by the term “capital raised”.

Chapter 2

Analysing transactions and preparing year-end financial statements

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. how there is a double financial implication arising from every financial transaction undertaken by an organisation,
2. the nature and format of the balance sheet,
3. the nature and format of the income statement,
4. how profit computed in the income statement flows into the owners' equity section of the balance sheet via the statement of owners' equity.

1) Introduction

This is the first of the three chapters concerned with **financial accounting**. Financial accounting concerns the preparation of **financial reports** that are made available to external users such as shareholders. This chapter provides an overview of the main financial accounting statements that appear in annual reports prepared by publicly listed companies (i.e., companies with shares listed on a stock exchange). Although this is not a long chapter, the material presented is fairly concentrated. A considered review of this material will provide you with a good basic appreciation of the nature of the year-end financial statements. To achieve this appreciation you will need to carefully follow through the chapter's worked example that illustrates how a set of financial transactions impact on the year-end accounts. Once you have gained an appreciation of the nature of the year-end financial statements, the next chapter will introduce the “debit/credit” double entry record keeping process that underlies the financial accounting system. Finally, [Chapter 4](#) introduces some more advanced aspects of double entry record keeping by reviewing year-end adjustments that need to be made to the financial records in order to recognise time-related issues such as asset depreciation.

Analysing transactions and preparing year-end financial statements

It may appear a little strange that a book concerned with hospitality decision making has devoted three chapters to financial accounting. There are, however, several reasons why a hotel manager should have a basic familiarity with financial accounting. Of particular significance is the fact that most professional accounting courses of study have a bias towards financial accounting, rather than management accounting, which is the branch of accounting concerned with the provision of accounting information for management decision making and control. Once qualified, many accountants secure jobs working in industries such as the hospitality sector, with the result that a financial accounting mentality frequently prevails in organisations' internal accounting departments. It is important that all managers appreciate the potential for this tendency and have an ability and willingness to "think outside the square" by asking for accounting information and analyses to be presented in a way that **supports management decision making rather than the needs of external reporting**.

An example of "thinking outside the square" might be a marketing manager who feels that a customer profitability analysis would help management deliberations concerned with allocating a promotion budget. The manager might feel reluctant to ask for such information, however, as the accounting system has never provided it in the past. If you review the material presented in [Chapter 4](#), it will become apparent that a key concern of financial accountants is the accurate allocation of profit earned to particular periods of time. The financial accounting system does not require, however, that profit be allocated across customer segments. As the impetus for allocating profit across customer segments is unlikely to come from an accounting department, it will have to be initiated by the manager needing the information. A second reason why a hotel manager should understand the basics of financial accounting is that two outputs of the financial accounting system, the **balance sheet** and the **income statement**, represent important sources of information that can further management control of the company. The manner in which these statements can be used to facilitate management control will be extensively explored in [Chapter 5](#).

2) The balance sheet and income statement

In most Western countries, four financial statements are presented in the published annual reports of publicly listed companies. These reports are the balance sheet, the income statement, the statement of owners' equity and the statement of cash flows.

The elements comprising the balance sheet, income statement and statement of owners' equity are described in this section. Following this, the worked example in the next section will show the extent to which these statements can be seen as direct outputs of the financial accounting record keeping process. No detailed review will be undertaken of the statement of cash flows which classifies cash inflows and outflows and identifies the net change in cash held by the firm over the reporting period. Relative to the balance sheet and income statement, this statement is not used as much for decision making and control purposes. Although it will not be considered further in this book, if you see a cash flow statement you will have an immediate rudimentary understanding of it, due to its resemblance to an aggregated version of your monthly bank statement.

The balance sheet is a schedule summarising what is owned and what is owed by a company at a particular point in time. Its three main sections which comprise assets, liabilities and owners' equity, are described in [Box 2.1](#).

Box 2.1

The main sections of a balance sheet

- **Assets** are “things” that are owned (most usually purchased) by the organisation. They are assets if the organisation can derive some future value from ownership. Typical hotel assets include: cash, accounts receivable, prepayments, inventory (sometimes referred to as “stock”), cars, china, silver, glass, linen, uniforms, equipment, land and buildings. Assets are generally recorded in the accounting system at their cost, although in some countries such as Australia, New Zealand and the UK, asset revaluations can be made (asset revaluation is not permitted under the generally accepted accounting principles of Canada and the US).
- **Liabilities** may be seen as the opposite of assets. They reflect financial obligations of the organisation. Typical liabilities include: wages and salaries payable, accounts payable and bank loans.
- **Owners’ equity** reflects the financial investment of the owners in the organisation. It includes the owners’ original investment plus all profits not paid out to the owners (i.e., profits retained in the business). For financial accounting purposes, profit is typically determined on an annual basis. This computation is achieved through the **income statement**. In the income statement, **expenses** for the year (which represent resources consumed such as housekeeping wages and cost of beer sold through a bar) are deducted from **revenue** earned during the year to give profit for the year. Money earned from selling room nights and also sales made in a restaurant and bar represent some of the main examples of revenue in a hotel. If expenses are greater than revenue, a loss results. Some profit may be withdrawn from the business by the owners. That portion of profit that the owners choose not to withdraw is effectively a further contribution to the business by the owners. It is therefore treated as an addition to owners’ equity (at the end of the accounting year), and is generally termed “retained earnings” or “retained profit”. Computation of the year-end owners’ equity balance is achieved through the **statement of owners’ equity**. The first line of this statement identifies the owners’ equity balance at the beginning of the accounting year. To this we add net profit for the year as well as any new equity capital raised. Finally, any profits distributed to the owners during the year (termed “drawings” or “dividends”) are deducted to give the closing owners’ equity balance.

From [Box 2.1](#) it is apparent that profit earned increases owners’ equity. It is also evident that the profit computed through the income statement can be seen to feed into the owners’ equity section of the balance sheet via the statement of owners’ equity. For this reason, at the year-end we need to prepare the income statement and statement of owners’ equity in advance of preparing the balance sheet.

Analysing transactions and preparing year-end financial statements

One key difference between the income statement and the balance sheet pertains to time. The income statement (like the statement of owners' equity) always relates to a period of time, i.e., the time taken to make the profit reported in the income statement. The balance sheet, however, relates to a particular moment in time.

Let's draw on the analogy of your own financial situation to highlight this important time distinction. If you were asked "How much do you earn?" you can only respond in the context of a time period, i.e., you could talk of your earnings last month or your earnings last year. Your earnings are analogous to the profit of a firm, in fact, a firm's profit represents what the business has earned for the owners of the firm (note how a time period is referred to in the heading of the income statement presented in [Exhibit 2.2](#) below). If you were asked "what is your wealth", however, your answer would have to be in the context of a particular moment in time, as the value of your assets are constantly changing, i.e., you might receive weekly payments for work rendered, you buy and consume things such as food on a daily basis, etc. To determine your wealth you would have to identify everything you own (your assets) and deduct everything that you owe (your liabilities) at a particular point in time. The issue of determining personal wealth is analogous to the preparation of a company's balance sheet which can be seen as a representation of the wealth of the firm, i.e., it summarises assets and liabilities. Like the wealth of an individual, the wealth of a firm can only be conceived in the context of a particular moment in time (note how a point in time is referred to in the wording of the balance sheet heading presented in [Exhibit 2.2](#) below).

A balance sheet can be presented in one of the following two basic formats:

$$\text{Assets} - \text{Liabilities} = \text{Owners' Equity}$$

or

$$\text{Assets} = \text{Liabilities} + \text{Owners' Equity}$$

As both formats represent an equation, some people talk of "the balance sheet equation". Underlying the first equation is the notion that the value of the owners' equity (the owners' stake) in the company equals the surplus assets that would remain after the acquittal of all liabilities. Underlying the second equation is the notion that money raised by a business is invested in various assets. The "money raised" notion is on the right-hand side of the equation as liabilities include sources of finance such as bank loans, while owners' equity refers to money invested in the business by the owners. With respect to the left-hand side of the second equation, the money raised finances the purchase of assets and any money raised but not used to purchase assets must be held as cash, which is itself an asset.

3) Classifying transactions according to assets, liabilities and owners' equity

Like a coin, a financial transaction has two sides. These two sides signify that all financial transactions have a double impact on a business. We will now consider a set of transactions and see how, as a result of their double impact, the balance sheet equation is always left intact. In this worked example the balance sheet equation is stated as "assets = liabilities + owners' equity". The same exercise could be performed using a format based on the alternative balance sheet equation, however.

Exhibit 2.1**Illustration of how transactions affect the balance sheet equation****May**

- 1 Owner contributes \$30,000 cash to commence business.
- 2 Purchased a van for \$12,000, paying \$3,000 in cash and obtaining a loan for the balance.
- 3 Purchased non-perishable food stock including a large maple syrup shipment on credit for \$800.
- 4 Billed clients \$19,000 for use of conference facilities.
- 5 Received \$6,000 from customers billed in (4) above.
- 6 Paid \$500 to trade creditors to reduce amount owing for inventory stock purchased.
- 7 Owners withdrew \$1,500 from the business.
- 8 The accountant has determined that \$600 of inventory stock has been used.
- 9 Paid \$250 for miscellaneous expenses (telephone, electricity, etc.).
- 10 Repaid \$5,000 of the loan taken out for the van.

Balance Sheet Equation

	<u>Assets</u>				=	<u>Liabilities</u>		+	<u>Owners' Equity</u>	
May	Cash at Bank	Accounts Receivable	Inventory	Vehicles		Accounts Payable	Loan Payable		Capital	Profit or Loss
1	+30,000								+30,000	
2	-3,000			+12,000			+9,000			
3			+800			+800				
4		+19,000								+19,000
5	+6,000	-6,000								
6	-500					-500				
7	-1,500								-1,500	
8			-600							-600
9	-250									-250
10	-5,000						-5,000			
Total	\$25,750	\$13,000	\$200	\$12,000		\$300	\$4,000		\$28,500	\$18,150
	\$50,950				=	\$4,300		+	\$46,650	

Analysing transactions and preparing year-end financial statements

In [Exhibit 2.1](#), transactions undertaken in the first ten days of trading for Joe Blow, a small sole proprietorship hotel offering seminar facilities close to Montreal's Ile Notre-Dame Formula One Grand Prix circuit, are summarised. Following this, the way in which each of the transactions affect the balance sheet are noted in the "account" columns appearing under the main balance sheet headings: assets, liabilities and owners' equity. In the interests of capturing all of the transactions in one matrix, transactions that affect profit (i.e., a sale or the incurrence of an expense) appear in the final column headed "profit or loss". As profit affects owners' equity, this column appears under the owners' equity heading. Investments in the business by the owners are recorded in the "capital" column which also appears under the owners' equity heading.

Following the steps undertaken in [Exhibit 2.1](#) represents a learning activity designed to develop your appreciation of the fact that every transaction has a double impact on the balance sheet equation. As will be seen later in [Exhibit 2.2](#), in reality transactions affecting profit flow first into the income statement and then flow into the balance sheet via the statement of owners' equity.

Following through the steps involved in [Exhibit 2.1](#) is an important exercise. Not only do they clearly demonstrate how every transaction has a double impact on the balance sheet, the exercise also lays the basis for your appreciation of the workings of the balance sheet. You should approach [Exhibit 2.1](#) by considering each transaction in turn and noting its double impact on the balance sheet in a manner that leaves assets equal to the sum of liabilities and owners' equity. A description of how each transaction results in a double impact is provided in [Schedule 2.1](#).

Schedule 2.1

The impact of [Exhibit 2.1](#)'s ten transactions on the balance sheet

Transaction date	Description of balance sheet impact
1 May	The business now has \$30,000 in cash (increase cash account). The capital account records all financial investments in the business made by the owners (increase capital account).
2 May	This transaction is slightly awkward as it affects three accounts. The business now has a motor vehicle which is an asset that cost \$12,000 (increase vehicles account). It paid for the van by using \$3,000 cash (reduce the cash account) and by borrowing \$9,000 (increase loan payable account).

Classifying transactions according to assets, liabilities and owners' equity

3 May	The business now has \$800 in inventory (increase inventory account). It owes money for this purchase (increase accounts payable account).
4 May	The business is now owed \$19,000 for services rendered (increase accounts receivable account). The business has now made a sale (increase the revenue account – treated in this exercise as positively affecting owners' equity by increasing profit).
5 May	The business now has a further \$6,000 in cash (increase cash account). The money it was owed with respect to the sale made on 4th May is now \$6,000 less (reduce accounts receivable account).
6 May	Cash has now declined by \$500 (reduce cash account). The amount owing with respect to the purchase made on 3rd May is now \$500 less (reduce accounts payable account).
7 May	The business cash balance has now declined by a further \$1,500 (reduce cash account). The net investment in the business made by the owners has declined by \$1,500 (reduce capital account).
8 May	The cost of stock held in the business has declined by \$600 (reduce inventory account). This decline in stock signifies that resources have been consumed (increase cost of sales account – treated in this exercise as negatively affecting owners' equity by reducing profit).
9 May	Cash has declined by \$250 (reduce cash account). The use of telephone and electricity signifies resources have been consumed (increase miscellaneous expense account – treated in this exercise as negatively affecting owners' equity by reducing profit).
10 May	Cash has declined by \$5,000 (reduce cash account). The amount owing on the loan taken out for the van is now \$5,000 less (reduce loan payable account).

We can present the results of the ten transactions described in [Exhibit 2.1](#) in a more conventional accounting format by compiling Joe Blow's income statement and statement of owners' equity for the first ten days of May and also Joe Blow's balance sheet as at 10th May. These statements are presented as [Exhibit 2.2](#). Note how the column totals in the balance sheet equation matrix appearing at the bottom of [Exhibit 2.1](#) feed into the statements compiled in [Exhibit 2.2](#). Also note how the profit determined in the income statement feeds into the balance sheet via the statement of owners' equity.

Exhibit 2.2

Illustration of how the income statement is linked to the balance sheet via the statement of owners' equity

Joe Blow Hotel Income Statement for the first 10 days of May

	\$	\$
Sales revenue		19,000
<i>less</i> Expenses		
Cost of sales	600	
Miscellaneous	<u>250</u>	
		850
Income (Profit)		<u><u>\$18,150</u></u>

Joe Blow Hotel Statement of Owners' equity 10 days ending 10th May

	\$
Owners' equity contribution	30,000
<i>plus</i> Net income	<u>18,150</u>
	48,150
<i>less</i> Drawings	<u>1,500</u>
Owners' equity at end of period	<u><u>\$46,650</u></u>

Joe Blow Hotel Balance Sheet as at 10th May

Assets	\$	Liabilities	\$	\$
Cash	25,750	Accounts payable	300	
Accounts receivable	13,000	Loan payable	4,000	
Inventory	200			4,300
Vehicles	<u>12,000</u>	Owners' equity		
		Capital		<u>46,650</u>
	<u><u>\$50,950</u></u>			<u><u>\$50,950</u></u>

The balance sheet presented in [Exhibit 2.2](#) has been compiled according to a horizontal format whereby assets appear on one side and liabilities and owners' equity appear on the other. You may also encounter balance sheets presented using a vertical format in which the totals of assets, liabilities and owners' equity appear one above another (see, for example, the balance sheet presented later in the book as [Exhibit 5.2](#)).

While both the horizontal and vertical balance sheet formats are widely used within the same countries, some different balance sheet formatting conventions do exist internationally. Relative to other English-speaking countries, some distinct conventions are evident in the United Kingdom. In Australia, Canada, New Zealand and the US, the convention is to present assets in order of liquidity, i.e., the assets that are closest to cash are presented first. If a business has cash, marketable securities, accounts receivable and inventory, then cash is presented first, marketable securities are second (marketable securities are readily convertible into cash), accounts receivable are third (accounts receivable are converted into cash in the short-term in the normal course of business), and inventory appears fourth (with the exception of cash sales, a sale from inventory will become an account receivable prior to translation to cash). In these countries, a similar rationale is applied to the sequencing of liabilities, i.e., those liabilities with the shortest term to payment appear first.

In the UK, however, there has been a convention to reverse this sequencing. This signifies that the first assets presented are long-held assets such as land and buildings (least liquid) and the asset presented last is cash (most liquid). Similarly, in the UK, the first liabilities presented are long-term liabilities such as loans payable, and liabilities that will be paid in the short-term, e.g., amounts owing to suppliers, are listed last.

4) The importance of understanding financial accounting basics

In your working life you are highly likely to meet senior managers who have a poor understanding of the mechanics of financial accounting. In the financial decision making case presented below, we see how an unfamiliarity with the basics of financial accounting can be a recipe for poor decision making.

FINANCIAL DECISION MAKING IN ACTION CASE 2.1

The General Manager's use of balance sheet information

Senior managers are increasingly using the performance of other hotels as a benchmark for appraising their own performance. A widely quoted performance indicator is return on investment (ROI) which is computed by stating a hotel's annual profit as a percentage of the investment in its assets (ROI will be more extensively discussed in [Chapter 5](#)). Considerable care needs to be exercised in this type of analysis, however, as balance sheets record assets (i.e., investment) at their historical cost and not their current value.

Imagine hotels A and B are in the same hotel chain and are highly comparable in terms of markets served, size, quality and profits generated. Hotel A was purchased seven years ago at a price that was 30 per cent less than the price paid for Hotel B five years ago. The difference in the amount invested resulted from

rapid inflation around the time the two hotels were acquired. If ROI is calculated based on conventional accounting records, it will appear that Hotel A is the better performer. This will be attributable more to the time when it was purchased than good management by the general manager, however. To provide a better basis for benchmarking the relative management performance in the two hotels, current market value rather than historical cost could be used as the basis for valuing the investment in each hotel.

This issue of assets being recorded at their historical cost is also pertinent to insurance decisions taken. Senior managers should ensure that all assets are insured for what it would cost to replace them. Replacement cost can be significantly different from the historical cost recorded in a balance sheet.

5) Summary

In this chapter we have seen how two financial implications arise from every financial transaction undertaken by a business. We have also reviewed the nature and content of the main financial reports: the balance sheet and the income statement. We have seen that the balance sheet comprises assets, liabilities and owners' equity accounts. The income statement comprises revenue and expense accounts.

Having read the chapter you should now know:

- the main account headings in a balance sheet and income statement,
- the layout of a balance sheet and income statement,
- how to classify transactions according to their impact on assets, liabilities and owners' equity accounts,
- how profit is determined in the income statement and flows into the balance sheet via the statement of owners' equity,
- the importance of senior managers having a basic understanding of the balance sheet.

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Problems

Problem 2.1

Describe what is meant by:

- a) an asset
- b) a liability
- c) owners' equity.

Problem 2.2

Describe what is meant by the term “balance sheet equation”.

Problem 2.3

Identified below are a set of transactions for the SerenitySleep Hotel which commenced business in Wellington, New Zealand on 1st June.

June

- 1 Owner commenced business by depositing \$20,000 in a new business bank account.
- 2 Purchased some basic office furniture for \$3,000 cash.
- 3 Purchased inventory stock for \$900 cash.
- 4 Purchased more inventory stock on credit for \$1,400.
- 5 Purchased an office computer for \$6,000, paying \$1,500 in cash and obtaining a loan for the balance.
- 6 Billed clients \$1,000 for use of conference facilities.
- 7 The owner withdrew \$800 from the business.
- 8 Banked the first week's cash revenue \$1,300.
- 9 It was determined that \$400 of inventory has been used since the commencement of business.
- 10 Paid \$240 for miscellaneous expenses (telephone, electricity, etc.).

Required:

Using a format similar to that appearing in [Exhibit 2.1](#), demonstrate the impact each transaction will have on the balance sheet equation.

Problem 2.4

Describe the difference between an income statement and a balance sheet.

Problem 2.5

“Both owners' drawings and expenses reduce equity. So owners' drawings are really the same as expenses”. Explain whether you agree with this statement.

Problem 2.6

The heading of a balance sheet and the heading of an income statement usually provide a reference to a date. Describe how the balance sheet differs to the income statement with respect to the time that it relates to.

Problem 2.7

Classify each of the following accounts as either an asset, liability, revenue, expense or owners' equity item:

Buildings
Wages
Drawings
Sales
Loan owed
Cash
Accounts payable
Loan interest paid
Inventory used
Inventory on hand
Bank account interest earned.

Problem 2.8

Using a schedule similar to that appearing in [Exhibit 2.1](#), record the following ten transactions that occurred for Jane Long's LusciouslyLong restaurant in the first ten days of May.

May

- 1 Purchased inventory stock for \$350 on credit.
- 2 Restaurant makes sales of \$2,000, \$1,200 for cash and \$800 on account.
- 3 Paid staff wages \$750.
- 4 Received \$660 in connection with customers billed in (2) above.
- 5 Jane Long withdrew \$2,400 from the business.
- 6 Paid \$330 for miscellaneous expenses (telephone, electricity, etc.).
- 7 Paid \$350 to trade creditors.
- 8 Took up a loan of \$4,200 from the bank.
- 9 Restaurant makes sales of \$2,800, \$1,500 for cash and \$1,300 on account.
- 10 Purchased furniture costing \$3,160 on credit.

Problem 2.9

The Johnson Hotel is located in Perth, Western Australia. Identified below are the account balances for the Johnson Hotel following its commercial activities through the month of December 20X1.

Accounts payable	\$ 10,000
Accounts receivable	12,000
Cash	5,000
Linen	8,000
Uniforms	7,500
Buildings	250,000
Loan payable	100,000
Owners' equity	148,000
Sales revenue	38,000

Inventory stock used	6,500
Miscellaneous expenses	3,000
Owner's drawings	4,000

Required:

- Prepare the Johnson Hotel's income statement for December 20X1.
- Prepare Johnson Hotel's statement of owners' equity for December 20X1.
- Prepare Johnson Hotel's balance sheet as at 31 December 20X1.

Problem 2.10

In April 20X1, Jock MacNoodle opened the MacNoodle Italian Restaurant in Glasgow. Identified below are the restaurant's financial transactions in its first month of business.

Date	Transaction
1 April	Jock MacNoodle deposited £10,000 in a newly opened business bank account.
2 April	Paid £400 cash for non-perishable food items to build up an inventory of food.
4 April	Purchased a photocopier costing £1,000. 10 per cent of the purchase price was paid in cash and a loan was taken to cover the balance.
5 April	Purchased £500 of wine stock on credit.
7 April	Banked the £350 received for cash sales made in first week.
8 April	Paid £450 rent for April.
14 April	Paid a kitchen assistant and waiter wages of £100.
18 April	Paid £300 as part settlement of the wine merchant's account.
27 April	It was noted that half of the stock of wine purchased on 5th April had been sold.
28 April	Banked £460 received from cash sales.
29 April	Paid a kitchen assistant and waiter wages of £280.
30 April	It was noted that £60 of food inventory had been used.
30 April	It was noted that credit sales made in the first month of business were £340.

Required:

Using a format similar to that appearing in [Exhibit 2.1](#), demonstrate the impact each transaction will have on the restaurant's balance sheet equation.

Problem 2.11

In connection with the information provided in the previous problem, prepare the following:

Analysing transactions and preparing year-end financial statements

- a) The MacNoodle restaurant's income statement for April 20X1.
- b) The MacNoodle restaurant's statement of owners' equity for April 20X1.
- c) The MacNoodle restaurant's balance sheet as at 30 April 20X1.

Problem 2.12

Paul Eastwell owns a Robina tennis resort complex. The resort has a 30th June financial year-end. The resort's account balances are as follows:

Paul Eastwell tennis resort account balances – 30th June 20X1

Accounts payable	\$ 22,000
Wages owing	4,600
Bank overdraft	7,300
Accounts receivable	12,000
Food inventory	3,800
Beverage inventory	2,400
Cleaning supplies	1,100
Tennis equipment	800
Land	230,000
Buildings	125,000
Loan payable	100,000
Furniture	13,000
Tax payable	14,200
Sales revenue	115,000
Food and beverage used	23,000
Wages	41,700
Miscellaneous expenses	4,200
Owner's drawings	6,000
Owners' equity	199,900

Required:

- a) Prepare the income statement for Paul Eastwell's tennis resort complex for the year ended 30th June 20X1.
- b) Prepare the statement of owners' equity for Paul Eastwell's tennis resort complex for the year ended 30th June 20X1.
- c) Prepare the balance sheet for Paul Eastwell's tennis resort complex as at 30th June 20X1.

Chapter 3

Double entry accounting

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. the mechanics of double entry bookkeeping,
2. how the terms “debit” and “credit” are used in financial accounting,
3. the fact that asset and expense accounts normally have a debit balance,
4. the fact that liability, owners’ equity and revenue accounts normally have a credit balance,
5. how to produce a trial balance,
6. the distinction between current assets and fixed assets and also current liabilities and long-term liabilities,
7. how to record transactions in a general journal.

1) Introduction

This chapter focuses on the fundamentals of **double entry accounting** and will reinforce the understanding of the **balance sheet** and **income statement** that you acquired from reading [Chapter 2](#). The chapter introduces the use of “T accounts” to record transactions and also the layout of the general journal.

2) Double entry accounting: some background concepts

In [Chapter 2](#) we saw how a double impact arises from any financial transaction. In light of this, it is not surprising that the financial accounting recording process is based on a system of double entries. In this chapter we will see that the columns in the previous chapter’s [Exhibit 2.1](#) represent “accounts” in a real accounting system. In [Exhibit 2.1](#) there were columns pertaining to cash, accounts receivable, inventory, etc. In double entry accounting we have a cash account, an accounts receivable account, an inventory account, etc. Further, we will see that the “+” and “-” symbols that indicated the directional change for each of the accounts in [Exhibit 2.1](#) represent a “debit” or “credit” in double entry accounting. An important word of caution is warranted at this point, however. A “+” does not always represent a debit or

Double entry accounting

credit and a “–” does not always represent a debit or credit. As we will see in [Exhibit 3.1](#) presented below, the relationship between the “+” and “–” used in the last chapter and the debit and credit terms used in double entry accounting depends on the nature of the account in question.

Before exploring the workings of the double entry bookkeeping system, it is helpful to review the nature of the five basic account categories. The five basic account categories in an accounting system comprise: assets, liabilities, owners’ equity, revenues and expenses. Asset, liability and the owners’ equity accounts relate to a certain point in time (they are sometimes referred to as “snapshot” accounts). Their “snapshot” nature should be apparent from the fact that they all appear in the balance sheet. We noted in [Chapter 2](#) that the balance sheet refers to a particular point in time, and not a period of time. Revenue and expense accounts are “flow” accounts (they only make sense when referring to a period of time). Again, this should be apparent from the fact that expense and revenue accounts appear in the income statement which, unlike the balance sheet, refers to a time period and not a particular point in time. A company’s set of accounts is referred to collectively as its “general ledger”.

Let us now turn to the fundamentals of double entry accounting. In [Box 3.1](#) there is a summary of key principles that can help when first confronting the debits and credits of double entry accounting.

Box 3.1

Key principles of double entry accounting

- With respect to balance sheet accounts: asset accounts normally have a debit balance, liabilities and owners’ equity accounts normally have a credit balance. Although this is a helpful rule, be warned that in some situations it can be broken, e.g., while we normally think of a bank account as an asset (i.e., debit balance), if it becomes overdrawn it will represent a liability (i.e., credit balance).
- With respect to income statement accounts: revenue accounts have a credit balance, expense accounts have a debit balance.
- For every debit entry, there must be an equal credit entry.
- Where there is a cash inflow we debit the cash account. For a cash outflow, we credit the cash account.

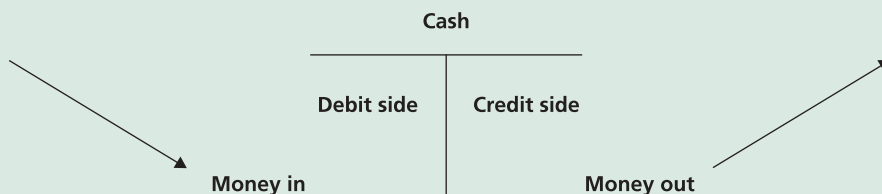
The first two principles in [Box 3.1](#) provide a framework that can serve as a highly valuable reference point when learning the double entry accounting process. This framework is also depicted as a matrix in [Exhibit 3.1](#). From this matrix we can see that asset accounts usually have a debit balance (column 1). It follows that a debit entry is made to record an increase in an asset account (column 2), and a credit entry is made to record a decrease in an asset account (column 3). Similarly, it is also evident from [Exhibit 3.1](#) that liability accounts usually have a credit balance (column 1), we credit a liability account to increase it (column 2), and debit a liability account to decrease it (column 3).

Exhibit 3.1**The double entry accounting framework**

Type of account	(1) Usual balance	(2) If increasing the account	(3) If decreasing the account
Asset (balance sheet account)	Debit	Debit	Credit
Liability (balance sheet account)	Credit	Credit	Debit
Owners' equity (balance sheet account)	Credit	Credit	Debit
Revenue (income statement)	Credit	Credit	Debit
Expense (income statement)	Debit	Debit	Credit

The fourth principle of double entry accounting referred to in [Box 3.1](#) concerns the workings of the cash account. Gaining a familiarity with the workings of the cash account is a useful first step when attempting to understand the double entry accounting system. This is because many transactions affect cash. Cash is an example of an asset account, and once you have mastered the way this account works, you will have gained an insight into the workings of all asset accounts. As cash is an asset, it is evident from [Exhibit 3.1](#) that a receipt of cash (i.e., an increase in cash) will be recorded by debiting the cash account and a disbursement of cash (i.e., a decrease in cash) will be recorded by crediting the cash account.

The cash account's workings can be illustrated using a "T account", as depicted in [Exhibit 3.2](#). The left-hand side of all T accounts (regardless of whether they are assets, liabilities, etc.) is the debit side (sometimes abbreviated as "Dr") and the right-hand side of all T accounts is the credit side (sometimes abbreviated as "Cr"). Some find it helpful to visualise money flowing through the cash T account from left to right, i.e., money flows into the left-hand side of the account (the arrow on the left in [Exhibit 3.2](#)), and flows out of the right-hand side of the account (the arrow on the right in [Exhibit 3.2](#)). Consistent with this visualisation, a receipt of money is recorded as a debit to the cash account and an outflow of cash is recorded as a credit to the cash account.

Exhibit 3.2**The Cash "T account"**

Double entry accounting

Because of the terminology used by banks, many students of accounting are confused when introduced to the workings of the cash account. They are used to their bank informing them that a deposit of funds in their account represents a credit. This confusion arises because the bank is using terminology from its perspective and not the account holder's perspective. This will be illustrated by the following small example. Imagine that Monica Miser deposits \$300 in her savings account held with the Loyalty bank. The double entry that the Loyalty bank will record in its accounting system is as follows:

Cash	M. Miser Savings Account
300	300

Note that the cash account (which is an asset from the bank's perspective) has been debited. This is consistent with [Exhibit 3.2](#). Note also that the bank's record of Monica Miser's savings account has been credited. This account represents a liability from the perspective of the bank (i.e., it records what the bank owes to M. Miser). As the bank's liability to Monica Miser has increased, the savings account has been credited (check back to column 2 in [Exhibit 3.1](#)). When Monica Miser receives a statement from her bank, she will find that the \$300 deposit has been recorded as a credit to her savings account. The confusion for the student of accounting stems from the fact that the savings account represents a liability for the bank, but an asset for the account holder.

3) Double entry accounting: a worked example

We are now in a position to explore the nature of double entry accounting through a worked example comprising several transactions. In the following example we will see the double entry recording of a series of transactions and the subsequent preparation of an income statement and balance sheet.

The "Joe Blow Hotel" example worked through in the previous chapter was based on a sole proprietorship. The example that will be worked through in this chapter is based on a company. Differences between sole proprietorships and companies were described at the end of [Chapter 1](#). Key accounting differences between sole proprietorships and companies include:

- In companies, equity is raised from investors by way of issuing shares and this equity funding is referred to as "Share Capital".
- In sole proprietorships, we talk of "drawings" when an owner withdraws capital from the business. In companies, the equivalent payments are viewed more as profit allocations to owners, and they are referred to as "dividends".
- In companies, a separate equity account termed "retained earnings" is maintained to reflect the profits retained in the business (i.e., the accumulation of profits not paid out to share holders as dividends).

Imagine that on 28th June the Winnie Pooh Hotel Ltd commenced business next to a children's theme park in Cardiff, Wales. On 30th June, the only balances in W. Pooh Hotel Ltd's accounting system were as follows:

Double entry accounting: a worked example

Cash	£ 8,000
Revenue	£ 300
Share capital	£ 7,700

Identified below are nine transactions that occurred in July, together with the double entry necessary to record each transaction in the accounting system. The circled numbers in the “T-accounts” highlight the entry necessary to record the transaction in question.

Transaction 1:

July 1: From the £8,000 balance in the bank account, beverage stock was purchased for £200 cash.

	Cash	Inventory
Opening balance (O.B.)	8,000	
	200	200

Both cash and inventory are asset accounts. From [Exhibit 3.1](#) it can be determined that the decrease in cash necessitates a credit to the cash account, and the increase of stock necessitates a debit to the inventory account.

n.b. [Exhibit 3.1](#) indicates that we expect to see a debit balance in an asset account (e.g. cash or inventory).

Transaction 2:

July 4: At an American Independence Day banquet function the beverage stock bought on 1st July was sold for £500 cash.

Note: this is a slightly tricky transaction to record as we have to complete two sets of entries. The first set deals with the sales aspect of the transaction, the second set deals with the expense aspect of the transaction.

Cash	Revenue
8,000	O.B. 300
500	500
200	

n.b. [Exhibit 3.1](#) indicates that we expect to see a credit balance in a revenue account.

Cost of sales	Inventory
200	200
	200

n.b. [Exhibit 3.1](#) indicates that we expect to see a debit balance in an expense account (e.g. cost of sales). Cost of sales includes the cost of all goods and services consumed in making a sale.

Double entry accounting

Transaction 3:

July 5: Purchased inventory stock on credit from Ripoff Ltd for £1,000.

Inventory		Accounts payable	
200			
	200		
1,000			1,000

n.b. Exhibit 3.1 indicates that we expect to see a credit balance in a liability account (accounts payable is an example).

Transaction 4:

July 10: Sold conferencing services on credit to Ripoff Ltd for £2,000.

Accounts receivable		Revenue	
			300
			500
2,000			2,000

Transaction 5:

July 11: Purchased ten kitchen ovens on credit for £250,000 from Rusting Ltd.

Kitchen equipment		Accounts payable	
250,000			1,000
			250,000

Kitchen equipment is an example of a “fixed asset”. “Fixed assets” is the term given to all physical assets that will be held by the purchasing company for more than a year. Fixed assets are acquired for use in operations rather than for resale to customers.

Transaction 6:

July 18: Paid Rusting £250,000 to settle the outstanding account.

Cash		Accounts payable	
8,000			1,000
	200		250,000
500	250,000	250,000	

Transaction 7:

July 20: Paid £300 for electricity bill.

Cash		Electricity expense	
8,000		300	
	200		300
500			
	250,000		
	300		

Transaction 8:

July 24: To correct the business bank overdraft, a further £500,000 of share capital is issued.

Cash		Share capital	
8,000			O.B. 7,700
	200		
500			500,000
	250,000		
500,000	300		

n.b. [Exhibit 3.1](#) indicates that we expect to see a credit balance in the share capital account.

Transaction 9:

July 31: A dividend of £1,500 is declared and paid to shareholders.

Cash		Dividends paid	
8,000		1,500	
	200		
500			
	250,000		
500,000	300		
	1,500		

n.b. “Dividends paid” is the one account that does not lend itself to interpretation through the framework outlined in [Exhibit 3.1](#). If attempting to use [Exhibit 3.1](#), it is best to view dividends paid as having a negative impact on owners’ equity. If more equity is raised by way of a share issue, we will see a credit made to owners’ equity. It follows that a debit to owners’ equity refers to a decrease in owners’ equity. Instead of debiting an owners’ equity account directly, however, when a dividend is declared and paid, we debit the dividends paid account.

As errors can occur in the recording of business transactions, e.g. for transaction 9 we may have erroneously entered a \$1,500 credit entry to the “Cash” account and a \$150 debit entry to the “Dividends paid” account, it is customary for a **trial balance** to be prepared at the end of an accounting period. The trial balance simply represents a listing of the debit or credit balance on each of the accounts in a business’s general ledger. It is called a “trial balance” as it represents a trial to see if the total of the accounts’ debit balances equals to the total of the accounts’ credit balances. If transaction 9 had resulted in an erroneous \$150 debit entry to the dividends

Double entry accounting

paid account, the trial balance would reveal the debit account balances as \$1,350 less than the credit account balances. This would signify that a review must be made in order to locate and rectify the accounting error uncovered through the process of producing a trial balance.

The trial balance also assists in the preparation of the year-end financial statements. This is because it lists in one schedule the year-end account balances that will make up the two end of year statements: the income statement and the balance sheet. The trial balance for the Winnie Pooh Hotel Ltd, following the recording of the nine transactions described above, is provided below.

Winnie Pooh Hotel Ltd		
Trial Balance		
as at 31st July		
	<u>Debit</u>	<u>Credit</u>
Cash	£ 256,500	
Accounts receivable	2,000	
Inventory	1,000	
Kitchen Equipment	250,000	
Accounts Payable		£ 1,000
Share Capital		507,700
Dividends Paid	1,500	
Revenue		2,800
Cost of Sales	200	
Electricity Expense	300	
Total	£ 511,500	£ 511,500

Following the preparation of the trial balance and check that the total of the debit account balances equates to the total of the credit account balances, the income statement for the W. Pooh Hotel can be produced as follows:

Winnie Pooh Hotel Ltd		
Income Statement		
For the Period ended 31st July		
	£	£
Revenue	2,800	
Cost of Sales	<u>200</u>	
Gross Profit		2,600
Electricity Expense		<u>300</u>
Net Profit		<u>2,300</u>

In [Chapter 2](#) we saw that the owners' equity balance can be computed by way of a "statement of owners' equity". In companies it is common practice to segregate owners' equity into two underlying elements: the share capital account and the retained earnings account. The share capital account records direct investments made into a business by shareholders, the retained earnings account records all business profits made and not distributed to the owners. The retained earnings account is increased by the profit made in an accounting period and is reduced by any dividends paid to the owners during the accounting period. For the Winnie Pooh Hotel case, profit for the period ending 31st July is £2,300 and dividends paid are £1,500. The retained earnings account on 31st July can therefore be computed as £800 (£2,300 – £1,500).

In the following balance sheet for the Winnie Pooh Hotel, assets have been segregated between current assets and fixed assets. Current assets include cash and other assets that

through the business's operating cycle will be converted into cash, sold or consumed within one year of the balance sheet date. As noted earlier, fixed assets include all physical assets that will not be sold in the next 12 months. Similarly, a distinction can be drawn between current liabilities and longer-term liabilities. Current liabilities include those liabilities that are due for payment in the course of the next 12 months, while long-term liabilities include liabilities that are not due for payment in the next 12 months.

Winnie Pooh Hotel Ltd Balance Sheet as at 31st July				
	£	£	£	£
<u>Current Assets</u>			<u>Current liabilities</u>	
Cash	256,500		Accounts payable	1,000
Accounts receivable	2,000		<u>Owners' equity</u>	
Inventory	<u>1,000</u>		Share capital	507,700
		259,500	Retained earnings	<u>800</u>
<u>Fixed Assets</u>				<u>508,500</u>
Kitchen equipment		<u>250,000</u>		
		<u>£ 509,500</u>		<u>£ 509,500</u>

For well-established companies, the retained earnings account can be one of the largest accounts appearing in a balance sheet. As highlighted in the financial decision making case 3.1, it is an account that is frequently misunderstood by managers.

FINANCIAL DECISION MAKING IN ACTION CASE 3.1

The General Manager's interpretation of the retained earnings account

The retained earnings account records the accumulated profits earned by a company and retained in the business. There is a common tendency, however, for managers who have had no accounting training to believe that the retained earnings account represents cash held.

It is imperative that senior management do not fall prey to this misconception of the retained earnings account because:

- As will be seen in [Chapter 13](#), careful cash management is fundamental to maintaining business solvency. The immediate factor that causes a bankruptcy is a shortage of cash.
- The retained earnings account is frequently one of the largest accounts appearing in a balance sheet.

Senior managers should not allow the retained earnings balance to influence their thinking in any decision that carries significant cash management implications. To determine how much cash a business holds, look at the cash (or bank) balance that appears as an asset in the balance sheet.

4) Journal entries

The previous section has shown you how a business records transactions as debits and credits in its accounts. We have also seen that these accounts are collectively referred to as the general ledger. Prior to posting transactions to the accounts in a general ledger, they are entered chronologically in a record referred to as a journal. While many businesses maintain a set of journals, with each journal tailored to a particular type of transaction (e.g., cash payments journal, cash receipts journal, etc.), most maintain at least a basic form of journal which is referred to as the “**general journal**”.

Journals are maintained in order to:

1. Provide a chronological record of all transactions. If a business was to experience a problem with its accounting system during a particular time period, the journal could be turned to as a record of transactions occurring during that time period.
2. Provide a complete record of each transaction. Note that in the general ledger, transactions are recorded in more than one place, e.g., a \$300 cash sale is recorded in the “cash account” record and the “sales account” record. Recording all information relating to a transaction in a journal helps in the avoidance and detection of errors.

To illustrate the workings of the general journal, imagine two May transactions for a hotel: on 3rd May it bought \$4,015 of wine stock on credit, and on 4th May it collected \$1,200 of cash owed by a customer. [Exhibit 3.3](#) illustrates how these two transactions would be recorded in the general journal.

The journal shows the date a transaction is recorded, the title of each account affected by the transaction and also the amount to be debited and credited. The name of the account to be credited and also the amount to be credited have traditionally been indented in the journal. The journal also records the account numbers of the accounts affected (accounts in the general ledger are typically numbered to facilitate easy access), referred to as “posting reference” in [Exhibit 3.3](#). A brief description of the transaction recorded is entered below the transaction.

Exhibit 3.3

Illustration of a general journal

Date	Account titles and transaction description	Posting reference	Debit	Credit
20X1				
May 3	Wine stock	144	4,015	
	Accounts payable	201		4,015
	<i>Purchase of wine stock on credit</i>			
4	Cash	101	1,200	
	Accounts Receivable	170		1,200
	<i>Collection of an account receivable</i>			

5) Summary

This chapter has built on [Chapter 2](#)'s introduction to financial accounting by describing the “debit and credit” system of double entry bookkeeping. A framework was introduced showing you that a debit increases asset and expense accounts and that a credit increases liability, owners' equity and revenue accounts. In connection with a worked example, you were shown an accounting transaction affecting each of these main account groupings.

Having read the chapter you should now know:

- how to increase or decrease asset, liability, owners' equity, revenue and expense accounts,
- how to record transactions in a general journal,
- how to produce a trial balance,
- that profits not paid out to a company's shareholders as dividends are generally credited to an owners' equity account called “retained earnings”,
- that current assets include cash and other assets that through the business's operating cycle will be converted into cash, sold or consumed within one year of the balance sheet date,
- that current liabilities include those liabilities that are due for payment in the course of the next 12 months.

References

- Jackling, B., Raar, J., Wines, G. and McDowall, T. (2010) *Accounting: A Framework for Decision Making*, 3rd edition, Macquarie Park, NSW, Australia: McGraw-Hill: [Chapter 14](#).
- Jagels, M.G. (2007) *Hospitality Management Accounting*, 9th edition, Hoboken, NJ: John Wiley & Sons: [Chapter 1](#).
- Schmidgall, R.F. (2011) *Hospitality Industry Managerial Accounting*, 7th edition, East Lansing, MI: American Hotel & Lodging Educational Institute: [Chapter 1](#).
- Weygandt, J., Kieso, D., Kimmel, P. and DeFranco, A. (2009) *Hospitality Financial Accounting*, Hoboken, NJ: John Wiley & Sons: [Chapter 3](#).

Problems

Problem 3.1

Describe whether we can say that a debit to an account signifies that something beneficial has happened for the business concerned.

Problem 3.2

Are we able to say that in double entry accounting a debit represents a plus and a credit represents a minus?

Problem 3.3

Dublin's BlarneyStone Pub opened on 1st April and the following six transactions occurred in its first week of business. Record the transactions in appropriately headed T-accounts for the BlarneyStone Pub's manager.

Double entry accounting

- a) Owner invested €4,000 in a newly opened bank account for the pub.
- b) Purchased €5,000 of “Old Black Creamy” stout on account.
- c) Paid cash €450 for a delivery of potato crisps and salted peanuts.
- d) Purchased a cash register for €1,000 on credit.
- e) Banked the first week’s bar takings of €350.
- f) Determined that the cost of “Old Black Creamy” sold in the first week was €150.

Problem 3.4

What is the difference between fixed assets and current assets?

Problem 3.5

In terms of debit and credit record keeping, explain why a manager may think there is an error when he notes the direction of the current bank balance in the accounts of their business and compares it with the direction of the balance on the business’s most recent bank statement.

Problem 3.6

Business transactions are recorded in a general ledger. A general journal is also used to record business transactions. So doesn’t maintenance of a general journal therefore signify significant duplication in record keeping?

Required:

Provide two reasons why many businesses maintain a general journal in addition to a general ledger.

Problem 3.7

Develop your own balance sheet by listing your assets and liabilities. From this listing determine your “net worth” which corresponds to “owners’ equity” in a business reporting context.

Problem 3.8

Fill in each of the blank boxes in the matrix appearing below with either the word “debit” or “credit”.

Type of account	Usual balance	To increase the account	To decrease the account
Asset			
Liability			
Owners’ equity			
Revenue			
Expense			

Problem 3.9

From the following listing of Jackie Cridland's CreatureComforts hotel accounts, distinguish between the debit and credit balances.

	\$
Buildings	120,000
Wages payable	1,300
Bank overdraft	2,240
Trade Creditors	3,300
Soft drink inventory	880
Office supplies	540
Drawings	3,600
Owners equity	78,450
Bank loan	18,420
Accounts receivable	4,500
Sales	24,600
Bank interest revenue	1,210

Problem 3.10

Record a hotel's following five transactions in appropriately headed T-accounts.

- Hotel receives \$500 for room sales.
- Hotel pays staff \$400 in wages.
- Hotel makes \$600 of restaurant sales all on credit.
- Hotel owner withdraws \$1,000 from the business.
- Hotel buys \$700 of inventory stock on account.

Problem 3.11

- Using "T-accounts", record debit and credit entries for each of the following transactions that all occurred in January 20X1 for a San Francisco restaurant. The T-accounts you will need are: Cash, Food Inventory, Beverage Inventory, Accounts Receivable, Furniture and Equipment, Accounts Payable, Bank Loan, Owners' Equity, Revenue, Food Purchase Expense, Beverage Purchase Expense, Wage Expense, Supplies Expense, Rent Expense, Interest Expense.
 - Mr T. Francis commenced business by investing \$30,000 cash in the restaurant.
 - Purchased on credit food stock for \$4,000 and beverage stock for \$6,000.
 - Purchased furniture and equipment for \$20,000, paying \$12,000 cash and owing the balance.
 - The bank extended a loan of \$20,000 to the business.
 - Made sales of \$40,000 during the month – 75 per cent of this was cash sales, the remainder was on credit.
 - Purchased \$9,000 of perishable food items (food purchase expense) on credit and paid \$2,000 cash for beverages (beverage purchase expense). The business has established that both these purchases should be immediately expensed.
 - Paid \$12,000 to trade creditors.
 - Repaid \$2,000 of the bank loan plus interest of \$100.

Double entry accounting

- i. Paid \$10,800 of wages.
 - j. Paid \$4,000 for miscellaneous supply items. The business has a policy of expensing these items on purchase.
 - k. On the last day of the month, paid \$1,500 rent for January.
- (b) Once the T-account entries have been recorded, prepare an income statement for January 20X1 and a balance sheet as at 31st January 20X1.

Problem 3.12

The following transactions occurred during the first month of operations for “Oz Hinterland Ltd”, a new hotel business located in the Australian Kimberleys:

- a. \$80,000 of share capital was raised.
- b. In order to provide further capital, a bank extended a loan of \$40,000 to the business.
- c. Paid cash for land and buildings \$99,500.
- d. Purchased kitchen equipment for \$20,000. \$8,000 of this was paid for in cash, with the balance owing.
- e. Purchased on credit a stock of linen and uniforms for \$5,800.
- f. During month received revenue of \$12,000 for room sales and restaurant revenue.
- g. Paid \$1,500 for first month’s wages.
- h. Paid \$300 covering one month’s interest on the bank loan.
- i. Paid \$1,200 insurance premium covering the first year of operations.
- j. Paid \$6,000 of the balance owing for kitchen equipment.
- k. Purchased beverage stock of \$1,500 for cash. By the end of the first month it was determined that one-third of this stock had been sold in the restaurant.
- l. Determined that during the month the kitchen had purchased \$1,800 of perishable food supplies for cash. No balance of food stock remained at the end of the month.
- m. Oz Hinterland declared and paid a total dividend of \$2,000.

Required:

- (a) Enter these transactions on T-accounts.
- (b) Prepare an income statement for the first month and a balance sheet as at the month end.

Chapter 4

Adjusting and closing entries

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. what is meant by “closing entries”,
2. what is meant by “adjusting entries”,
3. the distinction between periodic and perpetual inventory accounting systems,
4. how the accountant accounts for bad debts,
5. how the accountant accounts for depreciation.

1) Introduction

This chapter focuses on adjusting entries and closing entries. “**Adjusting entries**” is the term used to describe the set of bookkeeping entries that need to be made in order to **update** some accounts prior to the preparation of the accounting year-end income statement and balance sheet. “**Closing entries**” is the term used to describe the set of year-end accounting entries that are made in order that all accounts relating to a period of time (i.e., revenue, expense and the drawings or dividends account) **begin the new accounting year with a zero balance**. It is only once all adjusting entries have been completed that closing entries can be made. This is because closing entries result in the transference of account balances to the income account.

As the mechanics of adjusting entries are more challenging than the mechanics of closing entries, the chapter is structured around the different types of adjusting entries that can be encountered. In the course of considering a range of adjusting entries, the mechanics of making closing entries will also be demonstrated.

2) Why do we need closing entries?

Immediately prior to entering the new accounting year, all accounts that relate to a period of time (i.e., those accounts that do not flow directly to the balance sheet) need to be wound back to zero. If these accounts were not wound back to a zero balance on an annual basis, their balances would not reflect the current year’s sales revenue (for a revenue account) or the current year’s expenses

Adjusting and closing entries

(for an expense account). In effect, failure to close these accounts would result in the revenue account and also all expense accounts showing balances that reflect sales achieved and expenses incurred since the inception of the business. The term “closing entry” is used to describe the year-end transference of balances in these accounts to the income statement (the income statement can be thought of as an account in which revenues are credits and expenses are debits).

In [Chapter 2](#), we saw that the balance on the income statement (i.e., net profit) is transferred to the owners’ equity section of the balance sheet by way of the statement of owners’ equity. This highlights the fact that all accounts flow eventually into the balance sheet. This flow is direct for those accounts that are sometimes described as “permanent” (i.e., asset, liability and owners’ equity accounts) and indirect via the income statement for other accounts that are sometimes referred to as “temporary” (e.g., revenue and expense accounts).

3) Why do we need adjusting entries?

In many cases the need for adjusting entries arises because the timing of cash flows (either receipts or disbursements) does not coincide with the period in which it is appropriate to recognise the related revenue or expense. This distinction between the timing of a cash flow and the timing of the recognition of a revenue or an expense item stems from the accrual concept of accounting. The nature of this concept, as well as some examples of year-end adjusting entries, are presented in [Box 4.1](#).

Box 4.1

Adjusting entries and the nature of the accrual concept

Most year-end adjusting entries arise because of the accrual concept of accounting which holds that:

- revenue is recognised when it is earned and certain, rather than simply when cash is received,
- an expense is recognised in the period when the benefit derived from the associated expenditure arises (e.g., wages for work conducted during the current period are treated as an expense of the current period, regardless of whether or not they have been paid for during the current period).

Examples of year-end adjusting entries include:

- recording wages accrued (at the year-end there are wages owing for employee work conducted but not yet paid for),
- allocating the cost of a fixed asset to those accounting periods in which the benefit of owning the fixed asset occurs (this is “depreciation”),
- allocating a pro-rated portion of prepaid insurance to the most recent accounting period,
- adjusting accounts receivable (debtors) to recognise that some of the balance appearing in the accounts receivable ledger may prove to be uncollectible.

Worked examples highlighting types of adjusting entry

The examples of year-end adjusting entries provided in [Box 4.1](#) will be more fully explained in the next section which provides worked examples of year-end adjusting entries.

4) Worked examples highlighting types of adjusting entry

In this section, the following four basic types of adjusting entry will be explained by way of worked examples:

- Costs paid for but not yet incurred (i.e., expenses pre-paid),
- Costs incurred but not yet paid for (e.g., money owing for wages),
- Unearned revenue (i.e., cash received prior to delivery of a good or service),
- Revenue earned but no cash received (e.g., interest on an investment account that is earned but not yet received).

In addition, three further commonly confronted situations that give rise to adjusting entries are explored:

- Supplies used,
- Bad debts (uncollectible account receivables),
- Depreciation.

Adjusting entry type 1: Costs paid for but not yet incurred

This situation arises for insurance and rent (in rental and insurance situations the payee typically pays prior to the period in which the rental or insurance benefit is received).

Imagine that on 1st January 20X1 Winnipeg's TrudeauInn took advantage of a special insurance offer and purchased 18 months' insurance coverage for \$3,000. On 30th June 20X2 this policy was renewed for a further 12 months at a cost of \$2,400. TrudeauInn's accounting year-end is on the 31st December.

To compute the insurance expense to be charged to the income statement, prorate the amounts paid to the periods of time in which the insurance coverage expired, i.e.:

20X1 Insurance expense = Two-thirds of \$3,000 = \$2,000.

20X2 Insurance expense = One-third of \$3,000 + half of \$2,400 = \$2,200.

Accounting treatment:

1 January 20X1:

Insurance prepaid	Cash
3,000	3,000

n.b. The insurance cover is paid for in advance of the period of time that it pertains to. This signifies that immediately following the payment of the insurance premium, we have an asset (i.e., insurance coverage) that runs for the life of the insurance contract. This asset is referred to as "insurance prepaid".

Adjusting and closing entries

31 December 20X1 (adjusting entry):

Insurance expense		Insurance prepaid	
2,000		3,000	2,000

n.b. The need to make this year-end entry can be viewed from an asset depletion perspective or an expense incurred perspective. With respect to the asset depletion perspective, two-thirds of the insurance coverage paid for at the beginning of the year has now expired due to the passage of time. This signifies that the \$3,000 asset (i.e., prepaid insurance) has diminished by \$2,000. With respect to the expense perspective, 12 months of insurance cover was “consumed” in 20X1. From the prorated calculation above, we found that the 20X1 insurance cover effectively cost \$2,000.

31 December 20X1 (closing entry):

Insurance expense		Income statement	
2,000	2,000	2,000	

n.b. Prior to entering the new accounting year, all revenue, expense and drawing accounts (i.e., “period related” or “temporary” accounts) need to be wound back to zero in order that their balance at any time reflects the revenue, expense or drawings for the current accounting year. This process is generally referred to as making closing entries. These accounts are closed by transferring their balances to the income statement, which results in the compilation of a profit or loss for the year.

30 June 20X2:

Insurance prepaid		Cash	
3,000			2,400
2,400	2,000		

This 30 June 20X2 entry is to record the \$2,400 insurance premium paid.

31 December 20X2 (adjusting entry)

Insurance expense		Insurance prepaid	
2,200		3,000	2,000
		2,400	2,200

n.b. Again, we can take an asset depletion or an expense incurred perspective on this adjusting entry. With respect to the asset depletion perspective, in the first six months of 20X2, \$1,000

Worked examples highlighting types of adjusting entry

of the \$3,000 prepayment expired. In the second six months of 20X2, \$1,200 of the \$2,400 prepayment expired. From the expense perspective, this signifies that insurance coverage costing a total of \$2,200 is attributable to 20X2. Note also that a rationale can be offered for the \$1,200 year-end debit balance remaining on the insurance prepaid account. This represents the cost of acquiring insurance cover for the first six months of 20X3, i.e., the cost of insurance cover that is prepaid as at 31/12/X2.

31 December 20X2 (closing entry)

Insurance expense		Income statement	
2,200	2,200	2,200	

Finally, on 31st December 20X2, all revenue and expense accounts are closed off to the income statement.

In this example, it has been presumed that on payment of the premium, “insurance prepaid” is debited. In some accounting systems this amount may be charged immediately to “insurance expense”. This approach is referred to as “expensing on purchase”. If this alternative approach is taken, the year-end adjusting entry will have to set up the prepaid amount. For example, in the case described above, if the company had immediately expensed the \$3,000 insurance cover purchased on 1st January 20X1, the year-end adjusting entry would be as follows:

31 December 20X1 (adjusting entry)

Insurance expense		Insurance prepaid	
3,000	1,000	1,000	

n.b. Note how regardless of the initial method taken to record the insurance cover purchased, once the year-end adjusting entries have been made, the insurance expense account has a debit balance of \$2,000 and the insurance prepaid account has a debit balance of \$1,000. Some find it helpful to approach adjusting entries by first considering what year-end balance is needed in the prepaid account and the expense account. If you can determine what year-end balance needs to be reflected in these accounts you can work out what adjusting entry needs to be made in order to get to the year-end balance that you seek.

Adjusting entry type 2: Expenses incurred but not paid for (accrued expenses)

Costs incurred but not yet paid are frequently referred to as “accrued expenses”. One of the main examples of accrued expenses arises in connection with wages and salaries. If, at the end of the accounting period, employee work costing \$1,000 has been performed but has not yet been paid for, accrued wages are recorded as follows (the wages accrued account is a liability account that reflects wages owing):

Adjusting and closing entries

Wage expense	Wages accrued
1,000	1,000

Like all expense accounts, at the year-end the debit balance of the wage expense account will be closed off to the income statement. In the new accounting year, if the first wage bill paid amounts to \$5,000, the following entry will have to be made:

Wage expense	Wage expense	Wages accrued
5,000	4,000	1,000

n.b. This first entry in the new accounting year is slightly complicated as it involves three accounts. The cash account credit entry of \$5,000 is straightforward as \$5,000 has been paid out. The wage expense account starts the new year with a zero balance as a result of the closing entry made at the end of the previous year. Of the \$5,000 wage payment, \$1,000 relates to the previous year (this is evident from the \$1,000 credit balance in the wages accrued account). \$4,000 of the \$5,000 wage payment must therefore relate to work conducted this year. As the wage expense account is supposed to reflect the cost of work completed this year, it is appropriate that it be debited with \$4,000. Finally, prior to the wage payment, the wages accrued account reflects a liability of \$1,000. Immediately following the payment of wages the liability to employees is removed, therefore it is appropriate that a zero balance be reflected, i.e., a \$1,000 debit entry is warranted. The intricacies of this particular set of accounting entries only arise around the year-end, as in most accounting systems this is the only time that entries are made to the wages accrued account.

Adjusting entry type 3: Unearned revenue

Imagine that on 1st December the Captain Cook Hotel in Whitby, Yorkshire received £50,000 as an advance payment from a conference organiser, covering the cost of a five-day conference that the hotel will host commencing on 30th December. At the close of business on 31st December (the hotel's accounting year-end), 40 per cent of the conference service can be seen to have been provided (i.e., the hotel has completed the hosting of two days of the five-day conference).

The accounting entries that would be made in the hotel's books are as follows:

1st December accounting entry:

Cash	Unearned revenue
50,000	50,000

n.b. Unearned revenue is the name of the account that is credited when cash is received in advance of the provision of goods or services associated with a sale. This is a liability account. In the above example, in the period following the £50,000 receipt but prior to hosting the convention, the £50,000 can be seen to represent a liability. Under a typical conference

Worked examples highlighting types of adjusting entry

contract, if a contingency arises preventing the hotel from hosting the convention, it will have to refund the conference organiser.

31st December accounting entry (adjusting entry):

Revenue		Unearned revenue	
	20,000	20,000	50,000

n.b. As 40 per cent of the work contracted for (i.e., hosting the conference) has been completed by the year-end, 40 per cent of the original unearned revenue amount can be viewed as earned by 31st December. We therefore make a credit entry of £20,000 (40 per cent of £50,000) to the revenue account and reduce the balance on the unearned revenue account by making a debit entry of £20,000.

Adjusting entry type 4: Revenue earned but not received

The issue of accounting for revenue that has been earned but not received frequently arises when a reporting entity has an investment in an interest bearing account. Imagine Aberdeen's Scrooge Hotel has an investment of £24,000 yielding 10 per cent annual interest with cash interest paid semi-annually. The last time the Scrooge Hotel updated its records with respect to this investment occurred on 30th September which is when it last received an interest payment of £1,200 earned for the six months commencing 1st April. If the Scrooge Hotel has a 31st December year-end, the year-end adjusting entry required to record the interest that it is owed as a result of holding the investment through October, November and December is as follows:

31st December accounting entry (adjusting entry):

Interest Receivable		Interest Revenue	
600			600

n.b. The Scrooge Hotel's investment is earning interest at the rate of £200 per month. At the year-end, it has not recorded the interest earned in the final three months of the year. A £600 credit entry to the interest revenue account updates the hotel's record of interest earned in the year. The £600 debit entry to the interest receivable account highlights that the hotel has an asset in the form of interest that it is owed at the year-end.

Adjusting entry type 5: Accounting for supplies

Supplies such as office stationery generally represent a relatively small investment for most hotels. As a result, many hotels adopt the relatively simple accounting procedure of periodically determining the supplies balance by conducting a stock-take (this approach is generally referred to as a periodic inventory accounting system). Under a periodic inventory system, the purchases of supplies are simply recorded by debiting a "supplies purchases" account. Operation of a periodic inventory system and the adjusting entry that it gives rise to are demonstrated through the worked example in [Exhibit 4.1](#).

Exhibit 4.1

Determining stock used in a periodic inventory system

Suzy Defoe is the office manager of Manchester's Old Trafford Hotel. The hotel operates a periodic inventory system with respect to office supplies. At the year-end, the hotel accountant asked Suzy to oversee a year-end stock-take of supplies, in order that the cost of supplies used during the year could be determined. The year-end stock-take revealed that £2,000 of office supplies were held on 31st December 20X1. Suzy then consulted the supplies inventory account, which had last been updated 12 months previously (i.e., following the previous year-end's stock-take), and noted a debit balance of £2,800. Throughout the year she debited the "supplies purchases" account whenever purchasing supplies. She notes that prior to making any adjusting entries, this account had a year-end debit balance of £14,000.

The cost of supplies used in the year can be determined by solving for? in the schedule below.

	£
Opening balance	2,800
Add: Supplies purchased	<u>14,000</u>
Supplies made available	16,800
Less: Supplies used	<u> ?</u>
Closing balance	<u><u>£2,000</u></u>

As we have determined that the cost of supplies made available is £16,800, and we know that at the end of the year the stock of supplies available cost £2,000, we can conclude that £14,800 of supplies must have been used during the year.

The year-end adjusting entries that would have to be made in the scenario described in [Exhibit 4.1](#) can be managed in two stages. Firstly, the purchases account balance can be transferred to the supplies inventory account. Consistent with the philosophy of closing entries, this results in the purchases account starting the new accounting year with a balance of zero.

Supplies purchases		Supplies inventory	
14,000		2,800	
	14,000	14,000	

Worked examples highlighting types of adjusting entry

Secondly, the supplies expense account can be debited with the £14,800 cost of supplies used that was calculated above. The corresponding credit entry should then be made to the supplies inventory account. These entries result in the recognition of an expense (the supplies expense account will be closed to the income statement). They also result in a £2,000 debit balance in the supplies inventory account, which reflects the result of the year-end stock-take. This inventory account balance will comprise part of the total assets recorded in the year-end balance sheet.

Supplies expense	Supplies inventory
14,800	2,800 14,000
	14,800

Using a periodic inventory control system signifies that a degree of control is lost with respect to inventory. Between stock-takes the manager responsible for ordering supplies will have no administrative record of the supplies held in stock. If this is believed to represent a significant problem, the manager could consider using a perpetual inventory system. The relative merits of perpetual and periodic inventory systems are outlined in Financial decision making in [action case 4.1](#).

FINANCIAL DECISION MAKING IN ACTION CASE 4.1

The F&B manager's choice of inventory control procedures

Rather than depending on a periodic stock-take to determine what amount of stock is held, a perpetual inventory system can be operated. A perpetual inventory accounting system involves debiting the inventory account every time inventory is purchased and crediting it every time a sale or issue of stock is made. Deciding between a periodic and perpetual inventory approach can be a significant issue for an F&B manager due to the many low-cost food items that can be held.

Perpetual accounting systems are generally more expensive to operate due to the number of individual inventory records that have to be maintained. Despite this, an F&B manager would consider adopting a perpetual inventory accounting approach for particular food and drink items if one or all of the following issues is believed to be significant:

1. Significant stock shrinkage is occurring due to theft.
2. A significant loss of customer goodwill would result if certain menu items were to become unavailable.
3. Observing whether the stock item in question needs to be reordered is awkward and time consuming.

Adjusting entry type 6: Bad and doubtful accounts

An initial word of warning is warranted here. Without wanting to sound alarmist, accounting for bad debts gives rise to what is probably the most complicated set of accounting entries described in this book. Proceed at a gentle pace through this section!

At the end of the accounting period, an adjusting entry needs to be made to reflect the fact that some of the balance in “accounts receivable” may prove to be uncollectible. If some of the accounts receivable balance does prove to be uncollectible, the revenue account will be overstated as it will include “bad sale” entries, i.e., sales for which we will obtain no receipt of funds.

The following three steps outline a widely adopted approach to accounting for bad and doubtful debts.

Step 1: The provision

Periodically (say, every month end during the accounting year) update records to reflect and provide for the problem of potentially non-collectible accounts. If every month we make \$100,000 of credit sales and we believe that on average 2 per cent will prove to be uncollectible, having already debited “accounts receivable” \$100,000 and credited “revenue” \$100,000, we can make the following month end “adjusting entry”.

Bad debts expense	Allowance for doubtful accounts
2,000	2,000

The “bad debts expense” account can be described as a “contra” account, as it flows through to the income statement where it will off-set the revenue account’s credit balance. The “allowance for doubtful accounts” account can also be described as a contra account as its credit balance will be recorded in the balance sheet in a manner that off-sets the account receivables’ debit balance.

Step 2: An account turns bad

Imagine that half way through the accounting year one of our clients, Untrustworthy Ltd, went bankrupt while owing us \$3,500. It is determined that we are unlikely to collect any of the amount outstanding. The “step 1” month-end entry is designed to **provide** for this type of eventuality. Now the eventuality has been **realised** and we need to update the books as follows:

- remove the \$3,500 from “accounts receivable” (if we don’t do this, the account will contain a growing amount of entries for amounts that will never be collected),
- remove the \$3,500 from “allowance for doubtful accounts”, as, following removal of the amount from “accounts receivable” we no longer have a need to allow for it, i.e., no need for an off-setting contra entry.

Allowance for doubtful accounts	Accounts receivable
3,500	3,500

Step 3: Year-end adjusting entry

Following an appraisal of the \$150,000 year-end accounts receivable balance, it is estimated that \$3,200 may well prove to be uncollectible. An investigation of the books reveals that the “allowance for doubtful accounts” has a balance of \$3,000. Therefore, prior to making a year-end adjusting entry, “net” accounts receivable is recorded at \$147,000 (\$150,000 – \$3,000). As we expect to be able to collect \$146,800 (\$150,000 – \$3,200), net accounts receivable is overstated by \$200 and we need to make a \$200 adjusting entry.

Bad debts expense	Allowance for doubtful accounts
200	3,000 200

The debit and credit entries made here are the same as the “step 1” entries. The need for the year-end adjusting entry has arisen because the “step 1” entries during the year had not been sufficient to create the requisite year-end balance on the “allowance for doubtful accounts”. If at the year-end it is found that there is an over-provision in “allowance for doubtful accounts”, we would need to reverse the above entry by crediting “bad debts expense” and debiting “allowance for doubtful accounts”.

Adjusting entry type 7: Depreciation

Depreciation refers to the process of allocating the cost of a fixed asset (i.e., an asset with a useful life greater than one year) across the years in which the asset’s owner can be expected to derive benefit from owning the asset. If depreciation accounting entries were not made, the type of scenario outlined in [Box 4.2](#) could arise.

Box 4.2

A scenario highlighting the need for depreciation

The following hypothetical discussion between a user of accounting information prepared by SouthPark, a hotel with an untrained accountant, and one of SouthPark’s managers highlights the need for depreciation.

Accounting information user (e.g., a prospective shareholder):

“How come the SouthPark Hotel had a healthy profit for the last five years except for 20X1, when you reported a huge loss?”

SouthPark manager:

“Oh, 20X1 just so happened to be the year in which we bought our most expensive fixed asset. We received delivery of it on 28th December and in fact didn’t get around to using it until 20X2. We had expected the delivery to be made a week later, in which case you would have seen 20X2 as having the big loss”.

Accounting information user:

"So what you're saying is that the profit figure reported for 20X1 is misleading. It doesn't really reflect SouthPark's underlying performance relative to other years. You know this means that your profit for 20X1 is understated and your profit in the other years is really overstated. While 20X1 took a big hit, it's as if the subsequent years have had use of the asset for free".

Main depreciation methods

There are several distinct approaches to determining the timing of the fixed asset cost write off. In the following description of three methods, it will be assumed that a fixed asset has been purchased for \$1,200,000, and that it has been estimated that the asset can be salvaged in five years' time for \$200,000.

a) Straight line method: This widely used method involves apportioning the net cost of the fixed asset (purchase price – salvage value) equally across the life of the asset.

$$\begin{aligned} \text{Annual depreciation charge} &= \frac{\text{Purchase price} - \text{salvage value}}{\text{Estimated number of years asset will be owned}} \\ &= \frac{\$1,200,000 - \$200,000}{5} = \$200,000 \end{aligned}$$

b) Reducing balance method: Under this method, each year a fixed percentage of the asset's net book value (the net book value is the cost of the asset minus the accumulated depreciation charged on the asset since its purchase) is expensed as depreciation. This will result in a reducing depreciation charge as the net book value (NBV) will be reducing. In the following example, suppose 40 per cent has been identified as the annual percentage rate.

	\$
Opening net book value – year 1	1,200,000
1st year dep'n charge (NBV × 40%)	<u>480,000</u>
Opening net book value – year 2	720,000
2nd year dep'n charge (NBV × 40%)	<u>288,000</u>
Opening net book value – year 3	432,000
3rd year dep'n charge (NBV × 40%)	172,800

c) Usage based method: This is not a widely used method. To demonstrate how it can be applied, imagine that the asset purchased is a small airplane and that it has been estimated that the plane will fly 1 million kilometres in its life with the company.

If 200,000 kilometres were flown in 20X1, 20X1 depreciation charge =
 $(200,000 \div 1,000,000) \times \$1,000,000 = \$200,000$

If 300,000 kilometres were flown in 20X2, 20X2 depreciation charge =
 $(300,000 \div 1,000,000) \times \$1,000,000 = \$300,000$

Recording depreciation

Similar to the contra account set up for doubtful accounts, when depreciating, we set up an “accumulated depreciation” account, which acts as a contra account off-setting the balance in the fixed asset account.

For the 20X2 depreciation charge of \$300,000 in the airplane example above, the 20X2 year-end depreciation entry would be as follows:

Depreciation expense	Accumulated depreciation
300,000	200,000 300,000

As the depreciation expense account and the accumulated depreciation account have somewhat similar names, it is vital that their very different roles are clearly understood. The depreciation expense account is closed off to the income statement at the year-end. The fact that it is closed off in this manner should be evident from the word “expense” appearing in its title.

The accumulated depreciation account is reported in the balance sheet as a contra account that off-sets the fixed asset account. The fact that it is an account that accumulates across accounting periods suggests that it is a balance sheet account. Note how, by the end of 20X2, the accumulated depreciation account has accumulated from the \$200,000 depreciation expensed in 20X1 to \$500,000, as a result of the \$300,000 expensed in 20X2. The fixed asset section of the company’s balance sheet at the end of 20X2 would appear in a format such as that presented below:

	\$	\$
Fixed assets at cost	1,200,000	
Less accumulated depreciation	500,000	
Net book value of fixed asset		700,000

5) Summary

Through the use of worked examples, this chapter has outlined the nature of closing and adjusting entries. At the end of each financial year, closing entries are made to all accounts relating to a period of time, i.e., revenue, expense and dividend accounts. If these accounts are not closed at the end of a year, they would not have a zero balance at the start of the new financial year. Adjusting entries need to be made in advance of preparing the year-end statements in order to update some accounts. For example, as depreciation is a function of time, periodically an adjusting entry has to be made to update all depreciation accounts.

Having read the chapter you should now know:

- all revenue, expense and dividend accounts have to be closed at the end of the financial year,
- costs paid for but not yet incurred represent prepaid expenses and are treated as assets,
- expenses incurred but not yet paid for represent accruals and are treated as liabilities,
- if a customer pays for a service in advance of receiving the service, the receipt is referred to as unearned revenue and is treated as a liability,
- the difference between perpetual and periodic inventory accounting procedures,

Adjusting and closing entries

- how to account for bad debts,
- how to account for depreciation.

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Problems

Problem 4.1

Describe the difference between adjusting entries and closing entries.

Problem 4.2

Given the following information for Dunedin's CityCentre Hotel, post relevant adjusting entries to CityCentre's general ledger. Assume 30th June is the year-end.

- The telephone account of \$500 for June is unpaid and unrecorded.
- Rent of \$3,600 for the six month period ending 31st August is due to be paid in arrears in October.
- It was estimated at the time of purchasing a car two years ago for \$6,000 that the car would be salvaged five years later for \$1,000. The company uses straight line depreciation for all fixed assets. This year's depreciation entry for the car is still to be made.
- The next fortnightly pay date for the company's employees is 7th July. The fortnightly payroll is \$140,000.
- On 2nd March received \$1,600 cash from a client. This was an advance payment for services to be rendered. At the time of receipt, \$1,600 was recorded as a credit to unearned revenue. On 30th June, 75 per cent of this service had been provided.
- On 1st May received six months' rent revenue in advance totalling \$600. At the time of the receipt, this was recorded as a credit to rental revenue.

Problem 4.3

On 30th November, account balances relating to the accounts receivable management function of Minnesota's CitySlickers Hotel were as follows:

Accounts receivable	\$141,500	Debit balance
Allowance for doubtful accounts	\$2,400	Credit balance
Revenue	\$1,320,000	Credit balance
Bad debts expense	\$12,400	Debit balance

The following transactions occurred in December:

1. Cash collected from credit sale customers was \$92,000.
2. Credit sales were \$101,000.

On a monthly basis, the manager of accounts receivable has made an allowance of 1.25 per cent of sales to cover the contingency of trade debts turning bad. At the hotel's year-end, on 31st December, a review of accounts receivable has revealed the following:

Year-end estimate of doubtful accounts		
Age of account	Account receivable amount	% Estimated as uncollectible
0–30 days	\$ 84,000	0.75
31–60 days	44,000	1.25
61–180 days	18,000	5
Over 180 days	4,500	100
	<u>\$150,500</u>	

The company accountant has decided that all accounts with an age of 180 days or more should be written off from the accounts receivable ledger. In addition, the doubtful accounts balance should be revised to reflect the remaining estimated doubtful accounts following the year-end review of the accounts receivable ledger.

Required:

- (a) Record December's credit sales and cash collected transactions in appropriately titled "T-accounts".
- (b) Record all necessary year-end adjusting entries in appropriately titled "T-accounts".

Problem 4.4

Classify each of the following accounts as either an asset, liability, revenue, expense or owners' equity item (you can also use the term "negative asset", if you feel it is more appropriate for any of the accounts):

Interest revenue
 Wages accrued
 Depreciation expense
 Insurance prepaid
 Unearned revenue
 Bad debts expense
 Supplies inventory
 Allowance for doubtful accounts
 Accumulated depreciation

Adjusting and closing entries

Problem 4.5

The general ledger of the Cardigan Arms Pub includes the following accounts:

Sales revenue
Inventory
Interest revenue
Wages accrued
Prepaid insurance
Insurance expense
Accumulated depreciation
Depreciation expense
Rent expense
Prepaid rent
Allowance for doubtful accounts

Required:

- (a) Indicate for which of these accounts, a year-end closing entry will need to be made.
- (b) For each of the accounts requiring a year-end closing entry, indicate what account will need to be debited and what account will need to be credited.

Problem 4.6

Marlow's WatersEdge Hotel operates a periodic inventory system with respect to its cleaning supplies. A year-end stock-take has identified a balance of £4,200 cleaning supplies held on 31st December 20X1. The cleaning supplies stock account, which has not been adjusted since the previous year-end stock-take, reflects a debit balance of £3,400. Throughout the year, all cleaning supplies purchased have been debited to the "cleaning supplies purchases" account, which has a closing debit balance of £36,000. In addition, any returns to suppliers have been credited to a "cleaning supplies returns" account, which has a year-end closing balance of £1,020.

Required:

Using appropriately titled "T-accounts", make all required adjusting and closing entries.

Problem 4.7

The accounting manager at Antwerp's TranquilStay Hotel has prepared the following income statement that pertains to the most recent accounting year.

TranquilStay Hotel Income Statement for the year-ended 30 June 20X1	
	€
Sales revenue	420,000
Less: Cost of sales	<u>80,000</u>
Gross profit	340,000
Add: Interest revenue	<u>11,000</u>
	351,000

<i>Less: Expenses</i>	
Salaries and wages expense	145,000
Depreciation expense	82,000
Car park rental expense	3,000
Insurance expense	18,000
Sundry expense	<u>14,000</u>
	<u>262,000</u>
	<u>€ 89,000</u>

The accounting manager is uncertain how to handle year-end adjusting entries and has sought your advice. Following a review of the business, you determine the following:

1. A €2,500 advance payment received in connection with a conference to be held in late July has been included in the sales revenue figure.
2. Employees have not been paid €4,000 in wages and salaries earned in the last four days of June.
3. Depreciation of €10,000 on a new car purchased this year has not been recorded.
4. The hotel rents a small adjoining property which it uses for patrons' car parking whenever the hotel's underground car park is full. The last rental fee paid was €900. This payment was made on 1st May and covered a three-month period. The account manager recorded this as prepaid rent and no entry has been made to adjust this account at the year-end.
5. The hotel holds an investment that earns €1,000 interest per month. June's interest, which will be received in July, has not been recorded in the accounts.
6. Annual property insurance of €24,000 is paid semi-annually in advance. The last €12,000 payment, which was made on 1st April 20X1 was debited to prepaid insurance. No adjusting entry to the prepaid insurance account has been made.

Required:

- a) Prepare the necessary adjusting entries for the TranquilStay Hotel.
- b) Following completion of the adjusting entries, prepare TranquilStay's revised income statement for the year-ending 30th June 20X1.

Problem 4.8

Given the following information for Ottawa's Capital Hotel, prepare relevant adjusting entries. Assume that 30th June is the year-end.

- a) On 1st June the hotel received \$4,000 in advance for services to be rendered. This transaction was recorded on 1st June by debiting bank and crediting unearned service revenue. It was determined that by 30th June, 25 per cent of the service paid for had been provided.
- b) On 1st May six months' insurance premium was purchased for \$1,800. When the payment was made, the hotel debited prepaid insurance and credited bank.
- c) The hotel has an investment that is earning a return of \$2,400 interest per annum. The last interest payment was received on 30th April. The accounting records need to be adjusted to reflect the last two months of interest accrued.
- d) In the current financial year, the hotel's supplies account had an opening balance of \$600. \$7,000 of supplies have been purchased during the year and debited to the supplies account. A year-end stock-take has revealed \$400 of supplies in stock. During the year no accounting entries reflective of supplies usage have been made.

Adjusting and closing entries

Problem 4.9

Given the following year-end account balances for Boston's Johnson Hotel, prepare:

- a) an income statement for the period ended 30/6/20X1,
- b) a balance sheet as at 30/6/20X1.

Johnson Hotel Account Balances as at 30th June 20X1		
	Debit	Credit
Cash at bank	2,200	
Dividends paid	2,000	
Accounts receivable	1,500	
Closing inventory	400	
Depreciation expense	250	
Plant and machinery	11,000	
Accumulated depreciation		1,020
Sales revenue		26,500
Cost of sales	16,000	
Wage expense	4,500	
General operating expenses	140	
Accrued wages		100
Accounts payable		2,200
Unearned revenue		200
Share capital		4,800
Retained profits		3,170
	<u>\$37,990</u>	<u>\$37,990</u>

Problem 4.10

Match each of the following eight year-end adjustments with the appropriate year-end adjusting journal entry.

Year end adjustments

1. An expense has been incurred but not yet paid.
2. A \$5,000 deposit for a conference to commence in two weeks' time has been received. At the time the deposit was received, cash was debited and revenue was credited.
3. A bus insurance payment was expensed during the year, but at the end of the year there is still a period of insurance cover that has not been used up.
4. A car insurance payment was recorded by debiting insurance prepaid during the year, but at the end of the year there is still a period of insurance cover that has not been used up.
5. Some revenue appears to be unearned at the year end.
6. A new fixed asset purchased at the beginning of the year was accounted for by debiting the fixed asset accounting and crediting the cash account.
7. A portion of rent for a large land parcel was paid in advance three weeks before the year end, but has not been used up at the year end. When the rent was paid by the hotel, the accountant debited rent expense and credited cash.

8. Rent for a smaller land parcel has not been paid by the hotel and is owing at the year-end.

Year-end journal entries

- Debit revenue, credit unearned revenue.
- Debit depreciation expense, credit accumulated depreciation.
- Debit rent expense, credit rent payable.
- Debit expense, credit expense payable.
- Debit prepaid insurance, credit insurance expense.
- Debit prepaid rent, credit rent expense.
- Debit revenue, credit unearned revenue.
- Debit insurance expense, credit insurance prepaid.

Problem 4.11

Prior to making year-end adjusting entries, the accountant at Hong Kong's KowloonKingdom hotel has produced the following abbreviated income statement for the most recent financial year.

KowloonKingdom Hotel Income statement for the year ending 31st December 20X1	
Revenue	\$346,000
Less: Operating expenses	<u>102,000</u>
Net profit	<u><u>244,000</u></u>

Information for adjusting entries:

- Depreciation of \$42,000 has yet to be charged.
- Accrued wages at the year-end are \$3,200.
- The hotel hosted an engineers' conference that concluded three days before the year-end. At the year-end, the hotel had still to invoice the conference organiser for the final \$13,000 conference instalment payment.
- The hotel will be holding an accountants' conference commencing two weeks after the year-end. At the year-end, the hotel had received a deposit of \$5,000 from the conference organiser and recorded it as revenue.
- The hotel's annual property insurance policy was renewed on 1st April 20X1 with a premium payment of \$4,000. This payment was recorded by debiting insurance prepaid.
- The kitchen cleaning supplies account is maintained on a periodic inventory basis. At the beginning of the year, the supplies account had a \$1,100 debit balance. During the year, \$5,400 of cleaning supplies were purchased and a year-end stock-take determined a cleaning supplies balance of \$800.

Required:

- Prepare a schedule showing the impact on revenue and operating expenses resulting from preparation of the required year-end adjusting entries.
- Prepare a revised abbreviated income statement, as it would appear following the completion of the adjusting entries.

Problem 4.12

Prior to making adjusting entries, the Tewkesbury Kings Arms pub and guest house manager has provided you with the following financial year-end information:

1. Wages owing at the year end are £340.
2. Rent of £580, covering a two-month period was paid one month before the year-end. When the rent was paid the rent expense account was debited £580.
3. £212 of interest revenue owed to the pub has not been received or recorded.
4. The £880 prepaid insurance account balance includes \$340 of insurance premium paid to provide insurance cover for the first four months of the next financial year.

Required:

- a) Prepare the year end adjusting entries for the Kings Arms pub and guest house.
- b) If the adjusting entries were not made, demonstrate whether the Kings Arms pub and guest house profit would be understated or overstated.
- c) If the adjusting entries were not made, indicate the effect on the assets, liabilities and owners' equity sections of the Kings Arms pub and guest house's balance sheet.

Financial statement analysis

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. how insights can be gained from dissecting ROI (return on investment) into its two underlying elements: profit margin and asset turnover,
2. how a systematic analysis of a hotel's profit performance can be conducted through the use of ratios,
3. how an analysis of a hotel's short-term and long-term financial stability can be achieved through ratio analysis,
4. how operational ratios can be used as an aid to monitoring the operating performance of hotels,
5. how an aged schedule of accounts receivable can assist the management of receivables,
6. how it is important that an analyst develops the ability to tailor ratios with due regard to the nature of the hotel under investigation.

1) Introduction

This chapter moves us closer to management accounting and financial management as it focuses on techniques that can be used to analyse the financial performance and stability of organisations. Much of the analysis can be conducted through the use of ratios, e.g., return on investment (ROI tells us the **ratio** of return to investment), and, as a consequence, we frequently refer to “**ratio analysis**” in a manner synonymous to financial statement analysis.

The results of a ratio analysis convey limited information unless they are put into some context, however. Ratio analyses are most usually conducted in the context of a comparison to one or more of the following four benchmarks:

- a hotel's ratios from prior years (a trend analysis);
- ratios that have been set as goals (i.e., ratios underlying a hotel's budget);
- ratios achieved by other hotels (or divisions) in the same company;
- industry average ratios compiled by companies such as *Dun and Bradstreet* and the large accounting firms (this type of benchmarking is sometimes referred to as a cross-sectional analysis).

Financial statement analysis

In this chapter's description of a systematic approach to conducting a financial analysis of the year-end accounts, two distinct perspectives will be taken:

- Firstly, we will see how the **profit performance** of a company can be appraised.
- Secondly, we will see how to appraise the **financial stability** of a company.

We will conduct these analyses by drawing on the year-end financial statements of Melbourne's Celestial Hotel Ltd. These statements are presented in [Exhibits 5.1](#) and [5.2](#).

Following this overview of a financially oriented analysis, the chapter will review the main ratios used to analyse a hotel's operational performance. Operational ratios focus more on day-to-day operating issues, e.g., room occupancy levels, restaurant covers served per employee hour worked, etc. Although many operational ratios do not involve financial measures, they represent important performance indicators as a strong operating performance is a precursor to a strong financial performance.

2) Profit performance

If you were to ask an investor how their investment portfolio performed in a particular year, they would likely answer by referring to their overall return on investment (ROI). This casual observation is important as it highlights the degree to which ROI represents a fundamental indicator of performance. If limited to one ratio in an appraisal of a company's performance, a financial analyst would most likely use ROI.

Exhibit 5.1

Celestial Hotel Ltd Income statement for the year ending 31/12/20X1

	\$'000	\$'000
Revenue (60% of sales on credit)		100
/less Cost of Sales		<u>40</u>
Gross Profit		60
/less Expenses		
Selling	15	
General Administration	<u>5</u>	
		20
Earnings (profit) before interest and tax (EBIT)		40
/less Interest		<u>10</u>
Taxable profit		30
/less Taxation		<u>15</u>
Net Income after Tax		<u>\$ 15</u>

Exhibit 5.2

Celestial Hotel Ltd Balance sheet as at 31/12/20X1

Assets	\$'000	\$'000
<i>Current Assets</i>		
Cash	5	
Accounts receivable	7	
Inventory	<u>8</u>	
		20
<i>Fixed Assets</i>		
Equipment	10	
Buildings	<u>20</u>	
		<u>30</u>
Total Assets		<u>\$ 50</u>
	\$'000	\$'000
Liabilities		
<i>Current liabilities</i>		
Accrued wages	1	
Accounts payable	<u>4</u>	
		5
<i>Long-term liabilities</i>		
Loans		<u>15</u>
Total Liabilities		20
Owners' Equity		
Paid up capital (100,000 shares)	20	
Retained profits ¹	<u>10</u>	
		<u>30</u>
Total Liabilities and Owners' Equity		<u>\$ 50</u>

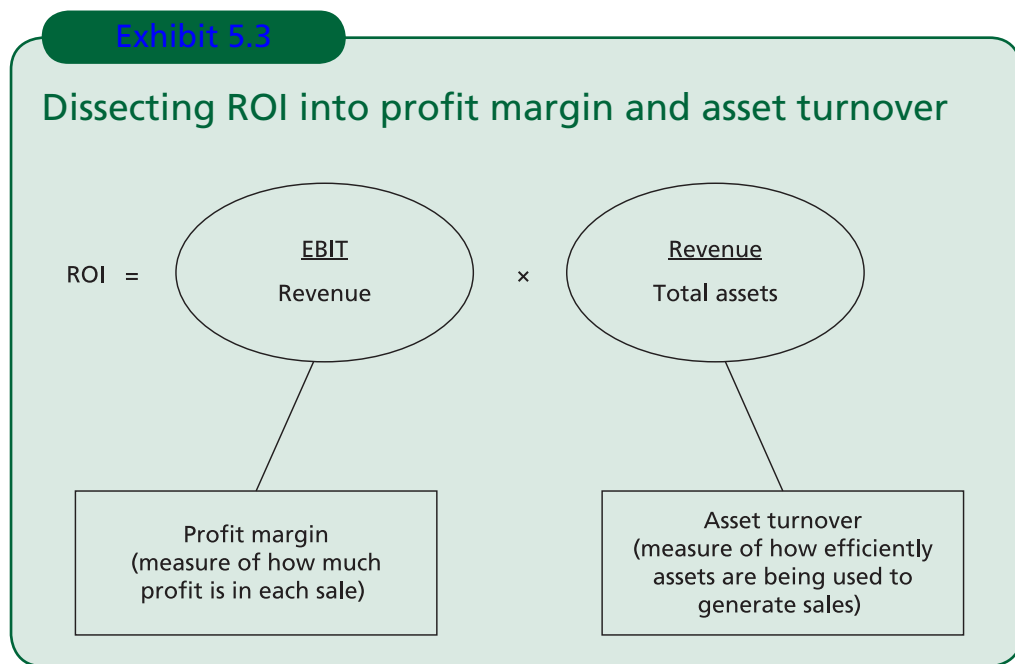
¹ The company must have started 20X1 with an accumulated loss of \$5,000 (i.e., a negative retained profit account). This is apparent from the fact that the income statement for 20X1 indicates profit earned and retained during 20X1 to be \$15,000, yet the retained profit at the end of the year is only \$10,000 (from the information provided, it appears no dividends were declared for 20X1). Much can be gleaned from a careful review of the accounts!

In the analysis of profit performance that follows, we will take a systematic approach by first computing ROI and then dissecting it into its underlying components. The perspective of appraising a hotel management's performance in generating a return (profit) from the assets available will be taken. This signifies that EBIT (earnings before interest and tax) is the appropriate profit level to focus on. This is because EBIT captures the operating performance of a hotel, as interest expense (the first item appearing after EBIT in the income statement) relates to a financing decision which is frequently outside the influence of the hotel general manager. Accordingly, we will calculate ROI in the following way:

$$\text{Return on investment (ROI)} = \text{EBIT} \div \text{Total assets}$$

$$\text{Celestial's 20X1 ROI} = 40 \div 50 = 0.8 \text{ (or 80\%)}$$

This 80 per cent ROI can be broken into two elements (a profit margin and a turnover component) as illustrated in [Exhibit 5.3](#).



The equation in [Exhibit 5.3](#) can be verified very simply by cancelling “revenue” in the left-hand circle (or profit margin component) with “revenue” in the right-hand circle (or asset turnover component) to leave us with the basic ROI formula ($\text{EBIT} \div \text{Total assets}$).

This dissection of ROI into the two underlying ratios is widely referred to as the “Dupont formula” (the formula was first observed in use in the Dupont company in the USA). The Dupont formula is highly significant as it provides the basis for a systematic analysis of ROI under two headings:

- a) profit margin
- b) asset turnover.

a) Profit margin

Following our first step in the ratio analysis, we found Celestial’s ROI to be 80 per cent. While this may appear to represent a healthy return, imagine it is down from last year’s figure of 85 per cent. Management would want to know what lies behind this decline. By using the Dupont formula, we can determine whether the decline stems from a decrease in the company’s profit margin or its asset turnover (or a combination of both). If the profit margin is down from last year, we can work systematically through the income statement, picking up all profit figures provided and comparing them to revenue. In the Celestial example, the first profit figure in the income statement is gross profit. Paralleling the approach taken to compute profit margin in [Exhibit 5.3](#), we compute gross profit margin (GPM) as follows:

$$\text{Gross profit margin (GPM)} = \text{Gross profit} \div \text{Revenue}$$

$$\text{Celestial's 20X1 GPM} = 60 \div 100 = 0.6 \text{ (or 60\%)}$$

If this 60 per cent GPM is similar to last year's GPM, we would be able to conclude that the lower overall margin has not resulted from a change in the ratio of selling price to cost of sales. It would be apparent that the decline in the ratio of EBIT to revenue must have resulted from a relative increase in selling and general administration costs, as these represent the two expense categories appearing after gross profit, but before EBIT, in the income statement. By taking this approach of progressively moving down the income statement, comparing every level of reported profit to revenue, we are able to isolate the category of expense that has caused a change in the overall profit margin. If we had originally used net profit margin (net profit after tax \div revenue) in the ROI computed above, we could have computed more profit margins in the course of systematically progressing through the income statement. Published accounts of large companies generally provide data sufficient to allow the calculation of several profit margins.

b) Asset turnover

Returning to the Dupont formula in [Exhibit 5.3](#), now imagine that we have noted that a decline in the total asset turnover ratio has occurred and that this decline lies behind the lower ROI. This observation would lead the analyst to look into those ratios that feed in to the total asset turnover ratio.

Similar to the approach of working systematically through the income statement when exploring for factors resulting in a changed profit margin, we can work through the balance sheet looking for that group of assets that lie behind a changed asset turnover ratio.

Whenever the term “turnover” is used, it signifies we are comparing an asset to revenue (or, in the case of inventory, cost of sales). Consistent with the total asset turnover ratio computed above as part of the Dupont formula, for each turnover ratio we divide revenue (or, in the case of inventory, cost of sales) by the particular asset grouping under investigation.

Each “turnover” ratio tells us how “hard” the particular asset has “worked” to generate revenue. For this reason, the turnover ratios are frequently referred to as “efficiency” ratios. Widely computed “turnover” ratios include:

- accounts receivable turnover
- inventory turnover
- fixed asset turnover.

Accounts receivable turnover

$$\text{Accounts receivable turnover} = \text{Credit sales} \div \text{Accounts receivable}$$

$$\text{Celestial's 20X1 A.R. turnover} = (100 \times 0.6) \div 7 = 8.57$$

Many managers find it difficult to conceptualise the meaning of the 8.57 computed above. For this reason the information is commonly converted into “number of days” by dividing the number of days in a year by the turnover.

$$\frac{\text{Average number of days to collect accounts receivable}}{\text{A.R. turnover}} = \frac{365}{\text{A.R. turnover}}$$

Financial statement analysis

$$\text{Celestial's average number of days to collect accounts receivable} = \frac{365}{8.57} = 42.6 \text{ days}$$

If the accounts receivable turnover ratio is decreasing, the average number of days to collect accounts receivable will be increasing.

Inventory turnover

Calculation of inventory turnover and also the “number of days inventory held” parallel the approach just taken for accounts receivable. There is one key difference, however. Unlike all the other “turnover” ratios, we divide inventory into cost of sales and not revenue. The reason for this difference is that inventory is recorded at cost price and not selling price. If we were to compare inventory to revenue and during the year selling prices doubled, we would see the inventory turnover ratio computed also double. The doubling of the ratio would be the result of a changed selling price and not a changed stocking policy, however. The potential for this misinterpretation is avoided if we compute inventory turnover using a consistent valuation basis, i.e., cost for the denominator (inventory) and cost for the numerator (cost of sales).

$$\text{Inventory turnover} = \text{Cost of sales} \div \text{Inventory}$$

$$\text{Celestial's 20X1 inventory turnover} = 40 \div 8 = 5$$

Similar to accounts receivable turnover, inventory turnover can be converted into a measure of the average number of days that inventory is held by dividing 365 by the inventory turnover.

$$\text{Celestial's average number of days inventory held} = \frac{365}{5} = 73 \text{ days}$$

When analysing a hotel's inventory turnover performance, it is desirable that beverage inventory be treated separately from the inventory of food supplies. This is because there might be differing stocking policies in the two areas. Drawing this distinction is particularly important where different personnel exercise stock making decisions in the two areas. Failure to distinguish between the two types of inventory might mask the existence of a low turnover in one area if there is a high turnover in the other area.

Fixed asset turnover

$$\text{Fixed asset turnover} = \text{Revenue} \div \text{Fixed assets}$$

$$\text{Celestial's 20X1 fixed asset turnover} = 100 \div 30 = 3.33$$

Fixed asset account balances do not tend to be as volatile as accounts receivable and inventory account balances. Nevertheless, due to the large relative size of fixed assets in hotels, a small percentage movement can have a significant impact on total asset turnover. The large investment in fixed assets can warrant the calculation of a turnover figure for every fixed asset sub-category identified, if such further information is available, i.e., in the Celestial example we could have computed a turnover figure for equipment as well as buildings.

General comments on turnover ratios

Except for cash, we have now computed the turnover ratio for each asset in Celestial's balance sheet. If we had noted a decline in total asset turnover, and had subsequently discovered that none of the turnovers computed above had declined, then there must have been a decrease in the ratio of revenue to cash. Consistent with the other ratios, we could compute a "cash turnover ratio" by dividing "revenue" by "cash". Due to the relatively small nature of the cash account, however, this ratio is seldom calculated. If we found that the problem lay in a declining cash turnover ratio, we would know that relative to revenue, the business is now holding more cash. We would then need to turn to question whether this development is desirable.

While it might appear from [Exhibit 5.3](#) that we would like to see increasing turnover ratios (a higher asset turnover will increase ROI), the downside implication of turnover ratios becoming too high should also be appreciated. If inventory turnover becomes very high, we might experience stock-outs, which could result in lost sales and loss of customer goodwill. If the accounts receivable turnover increases, we are on average extending less credit to our customers. If other hotels are extending longer periods of credit, this could result in the loss of some sales.

In the worked example presented above, we took year-end balances of the asset accounts when computing the turnover ratios. A preferred approach, however, would be to take the average balance of the asset account throughout the year. It could be that the year-end inventory balance is at an all-time temporary low and that Celestial normally holds twice this amount of inventory. If this is the case, the turnover computed will be a poor reflection of reality, i.e., the inventory holding period computed will be half the year's average holding time for inventory. If the asset in question is subject to high seasonal volatility, the average asset balance throughout the year should be sought. This could be done by calculating the average of the 12-month end balances for the year. While using an average asset balance provides a better picture of the asset's average turnover over the whole year, a new inventory manager who has been in place for only three months would be justified in arguing that her inventory turnover performance should be assessed by appraising average inventory balances since she took up her position, and not inventory balances recorded in advance of her job commencement. The same rationale would apply to a recently recruited credit manager.

The problem of defining ROI

It can be confusing trying to "tie down" ROI. It is a generic term that is tailored to many different situations, e.g., it could be used in the sense of the interest rate you earn on a bank account, or the net after tax return made on a portfolio of shares. Its exact calculation depends on the perspective being taken in an analysis. The following is an inexhaustive list of types of ROI that can be used to assess a company's performance:

- return on assets employed
- return on assets available
- return on long-term funds
- return on equity.

"Assets employed", "assets available", "long-term funds" and "equity" are all types of investment. If we wish to judge the performance of a manager who has been placed in charge of a group of assets that include some assets which, for some reason, he cannot currently employ (maybe rooms undergoing refurbishment), we might like to compare EBIT to assets employed

and not assets available. If we take a shareholder's perspective, we might like to compare net profit after tax to shareholder's equity. It can thus be seen that **the definition of return and the definition of investment is dependent on the context in which the analysis is being made.**

A review of how profit margin ratios and asset turnover ratios both feed into the ROI ratio is provided in Financial decision making in [action case 5.1](#).

FINANCIAL DECISION MAKING IN ACTION CASE 5.1

The Financial Controller and analysing ROI

The General Manager of the BeauChandelier restaurant chain is preparing for next month's year-end meeting with senior staff. He wishes to commend the staff on a great year as the hotel's ROI ($\text{EBIT} \div \text{Assets} \times 100$) has increased by 38 per cent over the year from 39 per cent in the previous financial year to 64 per cent in the current year. The General Manager has a background in marketing and has never felt particularly comfortable interpreting financial data. Not wishing to appear ill-informed at the meeting he asked the Financial Controller to quickly prepare a more detailed financial analysis that will point to what aspects of the business's operations lie behind the increased ROI.

The following day the Financial Controller sent the following email to the General Manager:

Hi Sam

I've completed the following financial analysis of our ROI performance over the last two years. The key data are as follows:

	<i>This year</i>	<i>Last year</i>
<i>ROI ($\text{EBIT} \div \text{Assets} \times 100$)</i>	64%	39%
<i>Gross profit margin ($\text{Gross profit} \div \text{Sales} \times 100$)</i>	55%	40%
<i>Operating profit margin ($\text{EBIT} \div \text{Sales} \times 100$)</i>	35%	23%
<i>Accounts receivable turnover ($\text{Credit Sales} \div \text{Average Accounts Receivable}$)</i>	12.5	14.3
<i>Inventory turnover ($\text{Cost of sales} \div \text{Average inventory}$)</i>	6.5	4
<i>Fixed Asset turnover ($\text{Sales} \div \text{Fixed assets}$)</i>	2.95	3.22

To understand ROI you need to know that two key things feed into it: profit margin (which is the ratio of profit to revenue) and asset turnover (computed by dividing revenue by assets).

Based on our data for the year, I can see that both profit margin and asset turnover have improved. Both improvements have had a positive impact on our ROI.

Firstly, with respect to profit margin, the key result is our 37.5 per cent increased gross profit margin. As this ratio compares gross profit to sales, we are really looking at the relationship between the cost of goods sold and revenue, as gross profit equals revenue minus the cost of goods sold. I've done some further digging around and can confirm that last year our cost of goods sold consumed 60 per cent of our revenue and this year it has consumed only 45 per cent of revenue. Most of the change in the operating profit margin that you see (23 per cent to 35 per cent) is down to the improved gross profit margin, so don't get too drawn into the change in that ratio. The change in the gross profit margin shows that the discounted deal that you struck with our new main food supplier at the end of last year was clearly a master stroke. It's pushed up the profit to sales element that feeds into ROI.

Secondly, with respect to asset turnover, the big change to note is the increase in our inventory turnover. We've gone from holding inventory for an average of 91.25 days ($365 \div 4$) to holding it for 56.15 days ($365 \div 6.5$), which represents a 38.5 per cent improvement. The quicker and more reliable shipments from that new supplier has helped us get by with less inventory. This has pushed up the revenue to assets element that feeds into ROI.

The other sales to assets ratio changes that you can see (12.6 per cent decline in accounts receivable turnover and an 8.4 per cent decline in fixed asset turnover) are pretty small relative to our improved inventory turnover performance.

Cheers

Ray

3) Financial stability

Analysis of financial stability (sometimes referred to as solvency, i.e., the ability to repay liabilities as they fall due) can be broken into short-term and long-term perspectives.

a) Short-term

Appraisal of a company's short-term financial stability is sometimes referred to as a "liquidity analysis". Analysis of liquidity concerns assets that in the normal course of business will be converted to cash, sold or consumed within a year (current assets) and also liabilities that are due for payment within a year (current liabilities). One indicator of liquidity is "working capital" (current assets – current liabilities), however, this indicator does not provide a sound basis for comparison across companies of varying sizes. More widely advocated measures of liquidity are the current asset ratio and the quick asset ratio (sometimes called the "acid test ratio"). The current asset ratio is calculated as follows:

Financial statement analysis

$$\text{Current asset ratio} = \text{Current assets} \div \text{Current Liabilities}$$

$$\text{Celestial's current asset ratio as at 31/12/X1} = 20 \div 5 = 4$$

This signifies that Celestial's "close to cash" assets cover its liabilities that will fall due for payment in the next 12 months by 4 times. This suggests a highly liquid situation.

If inventory is held for some time in the business prior to conversion to cash, a case can be made for its exclusion from current assets. This approach is taken in the acid test ratio, a liquidity measure which also excludes prepaid expenses from current assets. Prepaid expenses are excluded because in the normal course of business they will not be converted to cash. The acid test ratio is calculated as follows:

$$\text{Acid test ratio} = \frac{\text{Current assets} - \text{Inventory} - \text{Prepays}}{\text{Current liabilities}}$$

$$\text{Celestial's acid test ratio as at 31/12/X1} = 12 \div 5 = 2.4$$

In the hotel sector, due to the relatively "liquid" nature of most inventory, it is usual to base an appraisal of short-term liquidity on the current ratio rather than the acid test ratio. If a hotel had a large inventory of slow-moving wine, however, it would be appropriate to calculate a tailored liquidity ratio by deducting the wine inventory from current assets. Tailoring ratios in this manner can be justified if they result in a more accurate insight into the particular aspect of the company that is under investigation.

While we would certainly be concerned to see the current ratio or the acid test ratio fall below "1", it is difficult to provide an optimal current or acid test ratio. Much will depend on hotel-specific factors. A lender to the hotel would like to see high liquidity ratios as this would indicate a high ability to pay short-term debts. In fact, some lenders seek to protect themselves by requiring the borrower to maintain liquidity indicators, such as the current ratio, above a certain level. A loan provision can be drafted to this effect, and if the borrower's current ratio falls below what is stipulated in the loan provision, the lender can require the borrower to immediately repay the loan. If a business experiences liquidity problems, a variety of rectification options can be considered. For instance:

- Some fixed assets could be sold, maybe under a sale and lease-back agreement (increase to cash, no effect on current liabilities).
- A long-term loan could be sought (increase to cash, no effect on current liabilities).
- Further equity could be sought (increase to cash, no effect on current liabilities).

Caution needs to be exercised in liquidity management, however, as high liquidity ratios do not signify astute management. High liquidity ratios signify sub-optimal use of funds, as funds invested in short-term assets do not provide a high rate of return to owners. If funds can be freed up from current assets, greater investment can be made in long-term assets which can be seen to represent the engine room from which owners derive profits. Further discussion of working capital management issues is provided in [Chapter 13](#).

b) Long-term

Over the long term we are concerned with a firm's ability to pay all its debts, not merely short-term debt.

Ratios using operational measures

The long-term indebtedness of the firm is generally referred to as financial leverage or gearing. Two of the most commonly cited financial leverage measures are debt to assets and debt to equity. Debt to assets (sometimes called the “debt ratio”) is calculated as follows:

$$\text{Debt to assets} = \text{Total debt} \div \text{Total assets}$$

$$\text{Celestial's 31/12/X1 debt to assets ratio} = 20 \div 50 = 0.4 \text{ (or 40\%)}$$

Debt to equity is calculated as follows:

$$\text{Debt to equity} = \text{Total debt} \div \text{Total equity}$$

$$\text{Celestial's 31/12/X1 debt to equity ratio} = 20 \div 30 = 0.667 \text{ (or 66.7\%)}$$

Lenders like to see a low level of financial leverage (low level of debt) as this signifies that there is a relatively low likelihood of insolvency resulting from an inability to honour debt obligations. While owners would also be concerned by the insolvency implications of high levels of debt, their returns can increase as a result of increased levels of leverage. The way that the raising of debt can lever up the returns for equity investors is demonstrated in [Chapter 15](#).

Again, it is difficult to identify an optimal leverage ratio. However, these ratios do provide a means for comparing a firm's long-term liquidity position relative to that of its competitors. In addition, a trend analysis could highlight an alarming trend of increasing levels of indebtedness.

A final ratio can be computed as a further indicator of a firm's capacity to meet its long-term debt obligations. While the above ratios might suggest an insignificant level of leverage for a company, the company may be experiencing problems servicing its outstanding debt due to a low level of profitability. Such a situation would be highlighted by using the following ratio:

$$\text{Times interest earned} = \text{EBIT} \div \text{Annual interest payment}$$

$$\text{Celestial's 31/12/X1 times interest earned ratio} = 40 \div 10 = 4$$

The times interest earned ratio is sometimes referred to as a “coverage” ratio, i.e., it indicates the extent to which interest charges are covered by the company's level of profit. The above times interest earned ratio of 4 signifies that Celestial is currently experiencing little problem servicing its debt.

4) Ratios using operational measures

Performance ratios that have more of an operational focus than the financial ratios presented above are grouped below according to whether they relate primarily to rooms or restaurant activities.

Rooms-related performance measures

Occupancy level is a widely quoted performance indicator in the hotel industry. It has become such an established performance indicator that hotels competing in the same geographical area frequently share information on each others' occupancy levels.

$$\text{Room (or bed) occupancy} = \frac{\text{Number of rooms (beds) let in hotel}}{\text{Total rooms (beds) in hotel}} \times 100$$

This activity level indicator can be a little misleading in those hotels that let out a significant number of complimentary rooms. As a result, management's understanding of the exact nature of the occupancy level can be enhanced by modifying the room occupancy measure to provide "paid occupancy" and also "complimentary occupancy" activity indicators. These two indicators are nothing more than adaptations of the room occupancy performance indicator. They again highlight the importance of modifying ratios to fit the particular circumstance of the hotel under investigation.

$$\text{Paid occupancy \%} = \frac{\text{Number of rooms sold}}{\text{Total rooms in hotel}} \times 100$$

$$\text{Complimentary occupancy \%} = \frac{\text{Number of complimentary rooms let}}{\text{Total rooms in hotel}} \times 100$$

A high paid occupancy percentage does not necessarily signify a high revenue from rooms, however. Not all room sales are made at the rack rate (the rack rate can be defined as the maximum price that will be quoted for a room). Similar to the airline industry that sells seats in the same class and flight for a range of discounted prices, discounting room prices below the rack rate is a key characteristic of the hospitality industry. Accordingly, a performance measure that indicates the average room rate charged needs to be computed. This can be achieved via the "average room rate" (sometimes called the average daily rate or "ADR") performance indicator which is calculated as follows:

$$\text{Average room rate} = \frac{\text{Day's revenue from room letting}}{\text{Number of rooms let in the day}}$$

The room occupancy and the average room rate performance indicators, when considered independently, represent incomplete measures of sales performance. A higher level of total revenue from rooms will not result from an increased occupancy level if the room rate has been disproportionately dropped. Similarly, a higher level of total revenue from rooms will not result if an increase in the average room rate coincides with a disproportionate decline in the occupancy level.

There is a highly intuitively appealing performance measure that circumvents this "incompleteness" problem. The manager interested in monitoring room sales performance can calculate the average revenue earned by every room in the hotel (both sold and unsold rooms). This "revenue per available room" ratio is widely referred to by the abbreviation "Revpar" and can be calculated as follows:

$$\text{Revenue per available room (Revpar)} = \frac{\text{Total daily room letting revenue}}{\text{Total hotel rooms (both sold and unsold)}}$$

Box 5.1 demonstrates how revpar circumvents the incompleteness problem of the occupancy and average room rate performance indicators. The more comprehensive nature of revpar is apparent from the fact that it can be calculated by multiplying the occupancy level (stated as a decimal) by the average room rate. The significance of revpar as a performance measure will be further elaborated upon in Chapter 12's discussion of yield management.

Box 5.1

Revpar: a comprehensive indicator of room sales performance

Imagine you are comparing the room sales performance of two Canadian properties that are part of LuxuryLife's worldwide chain of hotels. Toronto's 120-room LuxuryLife property has been achieving an occupancy level of 65 per cent and an average room rate of \$100. Vancouver's 90-room LuxuryLife property has an average occupancy level of 72 per cent and an average room rate of \$80. The performance of these two properties highlights how the occupancy level and average room rate are relatively incomplete indicators of room sales performance. The Toronto property has the higher average room rate, but the Vancouver property has the higher average occupancy. The incompleteness of these two measures can be overcome by integrating the two measures into one, i.e., multiply occupancy level by average room rate to generate revenue per available room (revpar), i.e.:

Hotel	Occupancy		Average room rate		Revpar
Toronto	0.65	×	\$100	=	\$65.0
Vancouver	0.72	×	\$80	=	\$57.6

We can check that the product of occupancy and average room rate generates revpar, by calculating the Toronto property's revpar using the "total daily room revenue ÷ total hotel rooms" revpar formula as follows:

Toronto property's total daily room revenue = $120 \times 0.65 \times \$100 = \$7,800$
 Toronto property's revpar = $\$7,800 \div 120 = \65 .

As the Toronto property is achieving the higher revpar, we would conclude it has the better room sales performance.

The revpar dimension of room sales performance can be measured slightly differently by viewing actual revenue as a percentage of potential revenue. This ratio, which is generally referred to as "room yield", will always run in tandem with revpar, i.e., a high revpar will signify a high room yield. Accordingly, there is no need to compute both performance indicators. Both measures are introduced here because, while most hotel managers use revpar, others also refer to room yield.

$$\text{Room yield} = \frac{\text{Actual total room revenue}}{\text{Potential total room revenue}}$$

Financial statement analysis

On the expense side of a hotel's room sales activities, the efficiency of room service expenditure can be monitored by calculating the service cost per room in the following manner:

$$\text{Service cost per room} = \frac{\text{Total daily room servicing costs}}{\text{Number of rooms serviced in a day}}$$

Restaurant-related performance measures

A measure providing insight concerning the productivity of restaurant labour is revenue per employee hour worked, and can be computed as follows:

$$\text{Revenue per employee hour worked} = \frac{\text{Restaurant revenue}}{\text{Number of employee hours worked}}$$

Revenue per employee hour worked can also be applied to beverage sales. If seeking to compare labour productivity across different meal times (where there can be a considerable spread in the profitability of meals served and also average spend per head), it might be more appropriate to calculate covers sold per employee hour worked in the following manner:

$$\text{Covers per employee hour worked} = \frac{\text{Number of covers served in period}}{\text{Employee hours worked in period}}$$

Similar to the room occupancy performance measure used to gauge the rooms activity level, activity in restaurants can be gauged by calculating seat turnover. This provides an indicator of the average number of customers served on each restaurant seat during a day and can be calculated as follows:

$$\text{Seat turnover} = \frac{\text{Number of covers served per day}}{\text{Number of restaurant seats}}$$

Paralleling the trade-off between room occupancy and the average room rate noted above, a trade-off exists in restaurants between seat turnover and expenditure made by each customer. If menu prices are increased, we can anticipate a decrease in seat turnover. Expenditure per customer is generally referred to as “average spend per head” and can be calculated as follows:

$$\text{Average spend per head} = \frac{\text{Total restaurant revenue in period}}{\text{Number of covers served in period}}$$

Just as average room rate and room occupancy are incomplete measures of rooms performance, so too are average spend per head and seat turnover incomplete measures of restaurant performance. Following the approach taken to generate revpar, a more complete indicator of restaurant sales performance can be achieved by multiplying average spend per head by seat turnover. This term, which can be referred to as “revenue yield per seat”, provides an indication of the sales productivity of each restaurant seat. A simple way of computing revenue yield per seat is as follows:

$$\text{Revenue yield per seat} = \frac{\text{Total restaurant revenue}}{\text{Number of restaurant seats}}$$

The way in which revenue yield per seat represents a combination of the average spend per head and seat turnover performance indicators is demonstrated in [Box 5.2](#).

Box 5.2

Revenue yield per seat: a comprehensive indicator of restaurant sales performance

Imagine that in May 20X1 “MedievalMeals”, which is an 80-seat restaurant adjoining a Welsh castle, was open for 27 days and had a revenue of £67,500 from 2,700 covers sold. In May 20X2 MedievalMeals was open for 28 days and earned £75,264 from 2,688 covers sold. The table below presents the calculation of MedievalMeals’ seat turnover, average spend per head, and average daily revenue yield per seat for the two periods. From these calculations, an improved sales performance in May 20X2 is apparent as the daily revenue yield per seat is £2.35 greater (£33.60 – £31.25), despite the decline in seat turnover from 1.25 to 1.2.

Period	Seat turnover		Average spend per head		Average revenue yield per seat
May 20X1	1.25 ^a	×	£25 ^b	=	£31.25
May 20X2	1.20	×	£28	=	£33.60

a: Number of covers served per day = $2,700 \div 27 = 100$;

Seat turnover = $100 \div 80 = 1.25$

b: $\$67,500 \div 2,700 = \25

We can check that the product of seat turnover and average spend per head generates revenue yield per seat, by calculating revenue yield per seat for May 20X1 using the “total revenue ÷ number of restaurant seats” formula as follows:

$$£67,500 \div (80 \times 27) = £31.25$$

5) Summary

This chapter has described how a systematic approach can be taken when analysing a company’s profit performance and financial stability. By segregating the ROI measure into a profit margin and an asset turnover dimension and working through the elements that affect these two aspects of profitability, we can ensure a comprehensive profitability analysis is undertaken. We have also seen that a comprehensive analysis of financial stability can be undertaken by considering a company’s short- and long-term degree of indebtedness. In addition to these financial analyses, the chapter has overviewed operational measures that are widely used in the hospitality industry.

Having read the chapter you should now know:

Financial statement analysis

- how to take a systematic approach when analysing a company's profitability,
- how to analyse a company's short- and long-term financial stability,
- how to compute a range of operational measures that are widely used in the hospitality industry,
- how an aged schedule of accounts receivable can assist managers involved in accounts receivable management,
- that it is important to tailor ratios with due regard given to the nature of the organisation being analysed.

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Problems

Problem 5.1

HoJo and EasyRest are two companies in the American hotel and catering industry. The following financial data for 20X0 relate to their food and beverage activities:

	HoJo	EasyRest
	\$m	\$m
Revenue	500	300
Cost of sales	200	220
EBIT	50	15
Total assets	250	75

Required

- Use the Dupont formula (based on EBIT) to compare the performance of the two companies' F&B activities.
- Do the two companies appear to be operating different strategies, and if so, in what way?

Problem 5.2

In the last financial year, London's Enwad Hotel group achieved a revenue of £28.75 million and a gross profit margin of 40 per cent. Its end-of-quarter inventory balances were as follows:

Quarter	Inventory
1	£ 400,000
2	£ 800,000
3	£ 900,000
4	£ 200,000

Required

- Calculate the firm's inventory turnover and the average age of inventory.
- Comment on Enwad's liquidity, assuming most of its competitors operate with an inventory turnover of 40.

Problem 5.3

A friend who owns a Sydney restaurant has presented the following information to you and asked you to comment on the restaurant's performance in 20X2.

Current Assets	Year end 20X1	Year end 20X2
Cash	\$10,800	\$14,300
Accounts receivable	27,000	26,000
Marketable securities	7,500	7,500
Inventories	10,400	12,000
Prepaid expenses	1,500	1,600
Current Liabilities		
Accounts payable	\$ 8,400	\$12,200
Accrued expenses	3,600	5,600
Current tax payable	4,500	3,400
Deposits and credit balances	700	400
Current portion of loan	10,700	9,500

Required:

- For both years calculate the working capital.
- For both years calculate the current asset ratio.
- For both years calculate the acid test ratio.
- Comment on whether the restaurant is becoming more or less liquid.

Revenue for the year 20X2 was \$500,000 (55 per cent of this was credit sales) and the cost of sales was \$150,000. Calculate the following for 20X2:

- The accounts receivable turnover.
- The accounts receivable average collection period.
- The inventory turnover.
- The average age of inventory.

Problem 5.4

The following financial information highlights the profitability and financial stability in the last three years of FlyingFood, one of Heathrow airport's restaurants:

Financial statement analysis

Year	20X1	20X2	20X3
Current asset ratio	1.20	1.34	1.46
Food inventory turnover	36 times	30 times	25 times
Accounts receivable turnover	29 times	25 times	19 times
Debt to equity	2.40	2.20	1.85
Return on shareholders' equity	10.56%	9.44%	9.02%
Sales (all on credit)	£945,000	£952,000	£948,000

Required:

Using the above information, answer each of the following questions, including an explanation of why you answered each question in this way.

- On average, is the restaurant extending a shorter or longer credit period to its customers?
- Over the years, has more or less money been invested in food inventory?
- During the period, has the liquidity of the restaurant improved?
- Do you expect the shareholders to be satisfied with their return on investment? From the shareholders' point of view, is the profitability of the operation improving?
- Imagine that in 20X3 the restaurant wants to finance a proposed expansion through a loan. Relative to its financial position in 20X1, do you think it will be easier or harder for the restaurant to borrow?

Problem 5.5

Imagine you are head of the food and beverage department in a large Los Angeles hotel complex. One of the hotel's restaurants is currently earning an annual ROI of 14 per cent on the \$200,000 of assets attributed to the restaurant. The average profit margin on covers served is 40 per cent. The restaurant manager believes that if cover prices were dropped by 10 per cent (the average cover currently provides \$20 revenue), there would be a significant increase in ROI.

Required:

- Prior to the proposed price decrease, what is the restaurant's sales/total assets turnover ratio?
- If the proposed price decreases are implemented, what level of sales to total assets must be achieved in order to avoid a decline in ROI?
- Following on from part b), how many more covers must be served in order to avoid a decline in ROI?

Problem 5.6

Imagine you are the rooms manager of Will's Wooms, an 80-room hotel located in Stratford upon Avon. Demand for hotel rooms is significantly affected by the tourist season and the popularity of plays appearing in the nearby Shakespeare theatre. The General Manager has asked you to defend your decision to increase average room rates to £120 during the recent summer theatre season. Occupancy for this year's summer theatre season was 80 per cent which is down from the previous year's summer occupancy of 90 per cent. Average room rates charged during the previous year's summer season were £100.

Required:

Use revpar to defend your decision to increase room rates charged during this summer's theatre season.

Problem 5.7

A manager of a 120-seat Singaporean restaurant is interested in comparing the sales performance of two recent years. In 20X1, the restaurant achieved an average lunch spend per head of \$15 and a lunchtime seat turnover of 1.4. Also in this year, its dinner average spend per head was \$28 with a dinnertime seat turnover of 1.1. In 20X2 the restaurant was open for 312 days and had a revenue of \$2,135,000. 37 per cent of the revenue was earned from lunches (56,160 covers served) and 63 per cent was earned from dinners (44,928 covers sold).

Required:

Provide the manager with an analysis comparing the relative sales performance of the two years.

Problem 5.8

The following financial data relates to Tokyo's EasternSunrise hotel.

	Last Year	This Year
	¥ '000	¥ '000
<i>Income statement data</i>		
Revenue	5,000	5,250
Cost of Sales	<u>1,000</u>	<u>1,080</u>
Gross Profit	4,000	4,170
Selling Expenses	800	980
Administration Expenses	<u>1,200</u>	<u>1,900</u>
EBIT	¥ 2,000	¥ 1,290
<i>Balance sheet data</i>		
Cash	200	220
Accounts Receivable	350	360
Inventory	400	440
Fixed Assets	<u>18,600</u>	<u>24,660</u>
Total Assets	¥ 19,550	¥ 25,680

Required:

- Using EBIT data, calculate EasternSunrise hotel's ROI for each year to determine whether the hotel's profitability is increasing or decreasing.
- Conduct further ratio analysis of the data provided to determine what are the main factors that lie behind EasternSunrise's changed ROI level.

Problem 5.9

The following financial information has been taken from the year-end accounts of Wellington's TulipTower hotel.

Year	20X1	20X2
Cash at bank	\$ 20,000	\$ 24,000
Accounts receivable	11,500	13,500
Prepaid expenses	3,400	4,200
Inventory	10,900	12,000
Current liabilities	32,000	31,000
Long-term debt	250,000	232,000
EBIT	285,000	321,000
Interest on debt	16,000	14,300
Total assets	450,000	465,000

Required:

- For 20X1 and 20X2 calculate TulipTower's:
 - Current asset ratio
 - Acid test ratio
- From your answers to a), comment on TulipTower's liquidity status in 20X1 and 20X2.
- For 20X1 and 20X2 calculate TulipTower's:
 - Debt to assets ratio
 - Times interest earned
- From your answers to c), comment on TulipTower's trend with respect to long-term financial stability.

Problem 5.10

The information that follows has been extracted from the year-end accounts of Jersey's SmallIsle restaurant.

Year	20X1	20X2
Accounts receivable	£ 15,000	£ 14,000
Inventory	23,500	24,000
Sales revenue (80 per cent on account)	750,000	785,000
Cost of sales	285,000	321,000
Net profit	31,000	38,000

Required:

- For 20X1 and 20X2 calculate SmallIsle's:
 - Average collection period for accounts receivable.
 - Inventory turnover
- From your answers to a), comment on SmallIsle's asset turnover trend.
- For 20X1 and 20X2 calculate SmallIsle's:

- i. Gross profit margin
 - ii. Net profit margin
- d) From your answers to c), comment on SmallIsle's profit trend.

Problem 5.11

The following financial and operating ratios are taken from Singapore's International Airport Hotel for the years 20X1, 20X2 and 20X3.

	<u>20X1</u>	<u>20X2</u>	<u>20X3</u>
Current ratio	2.3	2.5	3.1
Acid test ratio	1.4	1.6	2.1
Times interest earned ratio	3.5	3.1	2.8
Debt to equity ratio	65%	72%	76%
Average days inventory is held	15	21	26
Average days to collect accounts receivable	28	32	35
Gross profit margin	68%	72%	76%
Net profit margin	18%	21%	23%
Return on investment (return on assets)	16%	14%	12%
Room occupancy	72%	74%	76%
Revenue per available room (Revpar)	\$210	\$205	\$201

Required (three marks available for each part):

- a) Explain whether, from an investment standpoint, the hotel's overall profit performance has improved over the three years (you must give a reason or reasons to support your answer).
- b) Explain whether the hotel's short-term financial stability has improved over the three years (you must give a reason or reasons to support your answer).
- c) Explain whether the hotel's long-term financial stability has improved over the three years (you must give a reason or reasons to support your answer).
- d) Explain whether the rooms' department performance has improved over the three years (you must give a reason or reasons to support your answer).

Problem 5.12

CurryinaHurry operates a chain of small food outlets in Germany. Some of the business's key financial data (in millions) for the current year is as follows:

	Beginning of year	End of year
Cash	€ 45	€ 125
Accounts receivable	20	30
Inventory	500	600
Prepaid expenses	<u>10</u>	<u>15</u>
Total current assets	€ <u>575</u>	€ <u>770</u>
Total current liabilities	€ <u>250</u>	€ <u>280</u>

For the current year, revenue was € 20,000 (10 per cent on credit) and the gross profit margin was 60 per cent.

Financial statement analysis

Required:

- a) For the current year, calculate the accounts receivable average collection period and also the average number of days that inventory has been held.
- b) For the end of year, calculate the current ratio and the acid test ratio.
- c) Comment on what the end of year's current ratio and acid test ratio reveal.

Chapter 6

Internal control

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. the nature and importance of internal control,
2. particular internal control challenges arising in hotels,
3. the main objectives of internal control,
4. the main principles of internal control,
5. internal control procedures relating to cash management,
6. internal control procedures relating to specific hotel activities,
7. how to prepare a bank reconciliation statement,
8. the purpose and operation of a petty cash system.

1) Introduction

Internal control concerns all of the procedures and policies that an organisation takes in order to:

- safeguard its assets;
- promote efficient operations (i.e., incur lowest cost to achieve a particular outcome);
- maintain accurate and reliable accounting records;
- promote the pursuit of business policies.

These four internal control perspectives are elaborated upon in [Box 6.1](#).

The most effective internal control procedures are preventative, i.e., they are designed to avoid inefficiencies or theft occurring. An example of a theft avoidance procedure is to require cash to always be held in a locked safe. As it is not possible to completely remove the threat of inefficiencies and theft, many internal control procedures focus on inefficiency and theft detection. An example of a theft detection procedure would be to conduct a surprise search of employee bags as staff leave the hotel at the end of their shift.

Box 6.1

The four objectives of internal control

1) Safeguard assets

This objective concerns the protection of an organisation's assets from theft, ensuring that fixed assets are maintained so that they can be used efficiently and safely (e.g. appropriate hotel lift maintenance), and ensuring inventory items are appropriately stored to avoid waste and spoilage.

2) Promote efficient operations

In a labour-intensive business such as a hotel, ensuring appropriate recruitment and training can go a long way towards promoting efficiency. Adoption of technological advancements, such as providing all banquet staff with earpiece communication devices, can also greatly facilitate efficient operations. A system that monitors the adoption of technological advancements made in the sector can ensure a hotel is at the forefront of reaping technology-based operating efficiencies.

3) Maintain accurate and reliable accounting records

This objective requires that procedures are established to ensure the production of reliable annual reports to outside parties such as shareholders. Users of external financial reports need assurance that the reports provide a fair reflection of the economic events that have affected an organisation. Managers also need reliable accounting information to assist their operational management decision making and control.

4) Promote the pursuit of business policies

It is not worth having internal control procedures if they are not followed. Many organisations conduct internal audits that contribute towards the maintenance of internal control in several ways, including appraising the extent to which document procedures are adhered to. Other ways to ensure conformity with business policies include training staff to an appropriate level and video recording staff as they conduct their work (video recording is an extensively used internal control device in casinos).

Internal control procedures permeate an organisation's operations. They are found in purchasing related systems right through to systems associated with sales and subsequent banking of cash. The systems can be classified into two main types:

- **Administrative controls** These are systems and procedures that are designed to promote the pursuit of efficiency and adherence to business policies. A fundamental source of administrative control comes from an organisation's structure and the lines of authority evident in the structure. An extract of an example of a hotel organisation structure is provided in [Figure 9.1](#).

- **Accounting controls** These refer to procedures put in place to safeguard the organisation's assets and ensure the maintenance of accurate accounting records.

The need for a broadly based internal control system is not as great in a small business, such as a 20-seater independently operated restaurant, as it is in a large business, such as a 200-room hotel with 100 employees. This is because in a small restaurant, the owner will usually be present and his eyes represent a very powerful internal control tool, i.e. the owner can watch, or personally manage, activities associated with handling cash receipts and cash payments. The scale of operations in large hotels, many of which are open 24 hours per day, signifies that owners cannot observe all cash transactions, however. As a result, in the place of the owners' eyes, a system of internal control procedures has to be developed and adhered to.

The early reference to cash management in this chapter is significant. Due to its high susceptibility to theft and embezzlement, cash represents an asset requiring particularly strong safeguards. This is especially the case in hotels due to the large number of cash transactions occurring in restaurants and bars.

Hotels experience high employee turnover and there are many hotel employees who work in close proximity to inventory items that are prone to pilferage. Many activities within hotels are conducted as relatively small independent units. For instance, if a bar is staffed by two individuals, economies of scale that can facilitate the development of segregated roles consistent with strengthening internal controls are absent. In combination, these factors signify that hotel managers need to have a sound appreciation of the nature of internal control challenges as well as an awareness of the types of procedures that can be implemented to manage these challenges.

This chapter represents an overview of internal control challenges and also widely applied approaches taken by management in a quest to promote internal control. Initially, we will review 11 internal control principles. Then an overview of some of the main internal control procedures used in connection with particular hotel activities is provided. Next, an approach for preparing a bank reconciliation statement is described and, finally, the purpose and operation of a petty cash system is outlined.

2) Internal control principles

To ensure that an adequate level of administrative and accounting control is achieved, several important internal control principles should be observed. The control measures implemented in an organisation will be affected by its size and nature, and also its management's views on which combination of controls will be most appropriate. This section summarises 11 major principles that should be considered when establishing an organisation's internal control system.

Establish clear lines of responsibility

Employees should have a clear appreciation of the extent of their responsibility for the tasks that they undertake and it is a supervisor's responsibility to monitor subordinates' compliance with established procedures. Control is better served when completion of a particular task is restricted to one person. For example, imagine that the cash in a restaurant cash register is \$20 short at the end of a dining period. If there has been only one person working on the register during the dining period, responsibility for the shortage can be quickly established. If two or more people have operated the register, it will likely be impossible to determine who

Internal control

is responsible for the cash shortfall. It is for this reason that you will see supermarket cash registers with removable cash trays. At the end of a checkout operator's shift, the operator will take the tray to an area of the supermarket where a reconciliation check can be made between the cash held in the tray at the beginning of the shift, the register's record of receipts during the shift and the cash held in the tray at the shift's end.

Segregate duties

Segregation of duties is a key feature of internal control systems. There are two main types of segregation:

- *Segregating responsibility for related transactions.* An example of a set of related transactions can be found in the purchasing area where there is a responsibility for: 1) ordering goods, 2) receiving goods and 3) paying for goods received. If the same hotel employee is responsible for overseeing all these functions, they might be tempted to order wine stock for their personal use, arrange for the wine to be delivered to their home and then authorise for payment of the wine shipment to be made by the hotel. Alternatively, an employee might place orders with personal friends rather than find the best quality products for the lowest cost. The chances of these types of scenarios occurring are greatly minimised if related transactions are not handled by the same person.
- *Separating record keeping and custodianship.* Responsibility for initiating transactions and for custody of related assets should be separate from the maintenance of accounting records. For example, a cashier responsible for a sales register should not be responsible for maintaining the cash receipts records in the general ledger. An employee with custody of a hotel asset is unlikely to take the asset for their personal use, if a record of the asset is maintained by a different employee.

Prepare written procedures

Established procedures for all major areas of a hotel's operations should be documented. For example, with respect to the receipt of food deliveries, procedures such as checking the quality and weight of meat delivered and verifying the number of packaged food items delivered should be documented. Such procedures should be posted in a place of prominence that is close to the food receiving area.

Documentation procedures

Documents provide the basis for determining that events and transactions have taken place. For example, a customer invoice provides an itemised record of the services that a guest has been charged for. Whenever possible, documents should be pre-numbered. Pre-numbering can strengthen control in a variety of situations. Imagine that a restaurant manager conducts a verification of receipts each day by comparing the closing amount in the register to the record of all customer bills submitted at the cash registry. The fact that the increased cash register balance is the same as the total amount of customer bills held at the register is no guarantee that all monies received have been placed in the cash register. This is because the cash register operator may have put one of the customer bills in their pocket, together with the cash received in connection with the missing bill. If all bills are pre-numbered, a restaurant manager could commence their daily cash register reconciliation by determining if any customer bills are missing from the pre-numbered sequence. In addition to pre-numbering,

it is also important that all documents that are needed for accounting system entry are promptly submitted to the accounting department, in order to facilitate timely recording of transactions.

Restrict asset access

Access to assets that are prone to theft, such as cash and inventory, should be restricted to a limited number of employees. In following this principle, however, care should be taken that restrictions are not so tight that they inhibit the efficient running of operations.

Use of mechanical and electronic devices

In order to protect assets and improve the accuracy of the accounting process, mechanical and electronic devices should be used wherever possible. Examples of these devices include: a safe or vault, cash registers and swipe cards providing restricted building access. A hotel shop can use barcode scanners to increase the speed and accuracy of the cash register checkout procedure and also merchandise inventory record keeping. If the shop stocks expensive merchandise items, it could attach electronic sensors that are removed on sale. If a customer attempts to leave the shop with the electronic sensor still attached to an item, an alarm is activated. Another electronic procedure that is widely used in hotels is a staff “clock in and clock out” facility that provides a record of the number of hours worked by staff remunerated on an hourly basis.

Maintaining adequate insurance

Insurance is necessary to protect an organisation’s assets against loss, theft or damage. Insurance can be taken to cover for the replacement cost of an asset, and also to cover for loss of profits resulting from any delay associated with replacing an asset.

Conducting internal audits

Internal audits are conducted by employees of the organisation that is to be audited. During the year, internal auditors investigate an organisation’s various record keeping systems and administrative processes in order to ensure operations are being conducted efficiently and in compliance with documented procedures. If a procedure, or a reporting form that represents a step in a procedure, becomes redundant, an internal audit should flag the redundancy and provide a recommended procedural change. Both internal and external auditors conduct tests to verify that appropriate audit trails are being maintained. An example of an audit trail is as follows:

- 1) purchase order is prepared for a shipment of wine;
- 2) goods received form is appropriately signed off to verify receipt of correct wine shipment;
- 3) stores record is updated to record entry of wine to storage;
- 4) restaurant requisition form is appropriately approved to initiate wine transfer to fridge in kitchen;
- 5) wine sales in restaurant are recorded on customer bills prepared by restaurant waiting staff (in an audit, the total for wine sales billed can be reconciled to the record of wine held in fridge);

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- 6) a reconciliation of cash register receipts to total of customer bills submitted at the cash register is prepared;
- 7) cash register receipts are recorded in the hotel's record of bank deposits; and
- 8) hotel's record of bank deposits are reconciled to bank statement.

Computer programming controls

These controls are built into a computer system to limit unauthorised and unintentional interference. For example, debits must equal credits, a sales assistant can be prevented from over-riding the price of an item being sold, cheques can be identified if they exceed a predetermined limit, etc.

Physical controls

The safeguarding of physical assets can be achieved by having physical controls such as a safe to hold cash and other valuable items, employee identification cards, lockable storage areas with key code access and external fencing. An important physical control in hotels is the use of combination number door locks to prevent guests accessing hotel administration areas.

Job rotation

Changing the work positions that staff members are assigned to can be a useful internal control strategy. For example, cashiers could be moved across departments, accounts receivable officers could be assigned to an accounts payable function, etc. Such job rotation increases the chances of any dishonest employee activities being uncovered. It also lessens the chances of "comfortable relationships" developing that can lead to collusion between employees. If collusion is occurring, the length of time that it occurs will be interrupted by moving staff across functions. Job rotation also carries the benefits of developing a more flexible and multi-skilled workforce that can derive satisfaction from increased task variability.

3) Internal control procedures used for specific hotel activities

Internal control of cash

As already noted, cash is the asset that is most susceptible to theft. Cash can be readily transferred into another asset, it is easy to conceal and transport, it can be hard to distinguish hotel cash from personal cash held in a wallet by an employee, and cash is highly desirable. It is therefore essential that appropriate internal control systems are established for cash handling and accurate accounting records are maintained with respect to cash. While all of the internal control principles just outlined apply to establishing a good system of cash management, four particular internal control principles warrant particular recognition in connection with cash:

- The responsibility for receiving cash, banking cash and the maintenance of accounting records should be assigned to three different employees.
- Cash receipts for each day should be banked on that day.
- An automated record of a cash register's receipts in each shift should be printed out by someone other than the cashier and used as the basis for updating accounting records.

- All payments should be made by cheque or electronic transfer, with appropriate authorisation provided by designated personnel.

The importance of internal control over cash is such that key issues to be considered are summarised in [Box 6.2](#).

Box 6.2

Issues to consider when developing cash internal control procedures

1) Cash is highly susceptible to theft

Cash can be easily exchanged for another asset, it is easy to hide and carry, it is not readily distinguishable from personal cash held in a wallet by an employee, and it is highly desirable. These factors signify that strong internal control procedures are warranted to combat the threat of cash theft or embezzlement.

2) Segregate duties associated with cash

The responsibility for receiving cash, depositing cash at the bank and maintaining accounting records relating to cash should be assigned to three different employees. This provides a theft deterrent for the person receiving the cash and also the person who banks the cash.

3) Ensure prompt banking

Cash receipts for each day should be banked on the day of the receipt.

4) Use cash register record when updating accounts

An automated record of all receipts taken by a cash register in each shift should be printed out by someone other than the cashier and used as the basis for updating accounting records.

5) Do not make cash payments

To the extent possible, all payments should be made by cheque or electronic transfer, with appropriate authorisation provided by the approved personnel.

Internal control of purchases

An absence of procedures governing who can place orders and what purchase order forms need to be completed would result in organisational mayhem. Without such procedures there would be no way of determining what has been ordered or the expected delivery dates for shipments, with the result that two or more employees might unknowingly order the same items. Clearly, responsibility needs to be established to determine which individuals will be responsible for ordering what type of goods. A particular chef can be assigned to initiating the purchase of meat and fish, a laundry manager assigned to initiating the purchase of laundry cleaning supplies, etc. In addition, procedures concerning the forms that should be issued in

Internal control

connection with a purchasing system need to be determined. The four forms that are typically issued in connection with a purchase are identified here in the context of the purchase of laundry detergent:

- A **Purchase Requisition Form** will be prepared by the laundry manager and submitted to the hotel's purchasing department. On this form the laundry manager will enter a description of the detergent, the amount required, date required and an approval signature.
- The **Purchase Order Form**, which is prepared by the purchasing department, typically has four copies. One is sent to the detergent supplier, one is sent to the laundry department as the requisitioning party, one is sent to the accounts department and one is held on file by the purchasing department. A maximum purchase amount will generally be established for a purchasing officer.
- A **Receiving Report Form** is completed on receipt of the detergent by the hotel employee with responsibility for receiving goods. The receiving report form is marked up as verification that the correct type and amount of detergent has been shipped.
- The **Supplier's Invoice**, which typically accompanies shipped goods, will document the nature of the detergent delivered and indicate the financial amount owing. This invoice, together with a copy of the receiving report form, is then sent to the accounts department. The accounts department should cross check the invoice to the original purchase order and also to the receiving report form to verify that all is in order. Once verified, the accounts department should stamp the invoice to indicate that it has been verified and approved for payment.

Internal control and inventory

There are two approaches that can be taken when accounting for stored items (food, beverages and other stored materials are widely referred to as “inventory” or “stock”). The first approach is called a “perpetual inventory system”. Under this system, an up-to-date record of what is being held in inventory is maintained perpetually. This perpetual record is achieved by debiting the inventory account with the cost of purchases whenever a delivery is received into inventory, and crediting the account whenever an issue is made from inventory. The second approach is called a “periodic inventory system”. Under this system no record is kept of items issued from inventory. As a result, there is no up-to-date record of what is held in inventory. This type of system can be appropriate for non-critical items that can be quickly replenished or low-value stock items such as office stationery. Under this system, the balance in inventory can be periodically determined by conducting a stock-take.

As a periodic inventory system signifies that the accounting system can provide no direct way of determining whether any theft of stock is occurring, it tends to be used in those situations where the inventory is not expensive and not prone to theft. Under a perpetual system, if a manager wishes to conduct a check into whether there is a theft problem, he can arrange for a physical stock count to be undertaken by a staff member who is independent of the stores function. If the amount of stock determined by way of the stock count is below the amount recorded in the perpetual inventory system, the manager will have uncovered evidence consistent with theft of inventory.

Internal control and payroll

Payroll is frequently the single largest hotel expense item. This justifies it receiving particular attention with respect to the establishment of internal control procedures. Responsibilities

Bank reconciliation: an important internal control procedure

should be segregated so that different people are responsible for authorising an individual's employment and wage rate, verifying hours worked, preparing the payroll, signing payroll cheques, mailing pay cheques to employees and reconciling payroll accounts. Employees who are paid an hourly rate should have their check-in and check-out times recorded on a time clock and their supervisors should sign off on their recorded times (supervisors need to be alert to the possibility of one employee clocking in and clocking out for two or more employees). To facilitate bank reconciliations, one bank account should be maintained for making general payments and a separate account maintained for paying employees. The steps to be taken in preparing a bank reconciliation are described in the next section.

4) Bank reconciliation: an important internal control procedure

A bank account greatly facilitates internal control over cash. This is because:

1. It enables a business to greatly reduce the amount of cash held on its premises;
2. Due to electronic transfer and chequing facilities, it greatly minimises the need for cash transactions;
3. By preparing periodic bank reconciliation statements, it enables periodic checks to be made of the accuracy of the cash balance recorded in the hotel's accounting system.

The way in which a bank reconciliation provides a means for verifying a company's recorded cash balance is explored in detail in this section. A bank reconciliation should be prepared on a monthly basis, to ensure that management is promptly alerted to any banking anomalies.

Because a business and a bank both maintain a bank account record, you might expect that these records would normally agree. As will be seen below, due to timing differences, at any particular moment in time they actually seldom record the same bank account balance. A bank reconciliation statement provides an overview of differences between a bank's record and a company's record of a bank account's cash movements. Possible reasons for a difference between the cash balance recorded on a bank statement and the record in a company's accounting system include:

- Timing differences: for example there may be a delay in a hotel cheque payment being presented to the bank.
- Errors: for example an error might be made in recording a deposit amount in a hotel's accounts.
- Bounced cheque: a customer's cheque that has been recorded in a hotel's accounting system might not be honoured by the customer's bank.
- Other differences: these can occur due to the delay in a hotel recording direct deposits made to its bank account or withdrawals made from its bank account.

Differences between a bank statement and the record in a company's accounting system are outlined in greater detail in [Box 6.3](#).

Box 6.3

Factors causing a difference between a company's recorded bank account balance and the bank statement balance

1) Timing differences

Several days can elapse between the time that a company mails a cheque to a supplier and the time that the cheque is paid by a bank. If the supplier is a small operator who is overseas at the time a cheque is mailed, it could take more than a month for the cheque to clear. Also, if a company places deposits in a bank's night safe, there will be a one day difference between the time the company records the deposit and the time the bank records the deposit.

2) Bank account fees

If a bank account is subject to any banking fees, these fees will appear on the bank statement before they are recognised in a company's accounting system.

3) Bank account interest

If a bank account earns interest on the average balance held in the account, the interest received by a company will appear on the bank statement before it is recognised in a company's accounting system.

4) Bounced cheques

A difference will arise between a company's records and a bank statement if a customer's cheque that has been recorded in the company's accounting system bounces (i.e., the cheque is not honoured by the customer's bank). A cheque will bounce if the customer's account has insufficient funds to cover the cheque amount. A bounced cheque is sometimes referred to as a "dishonoured cheque".

5) Direct deposits

If a customer directly deposits funds in a company's bank account, the company will wait to see confirmation that the deposit has been recorded on its bank statement, prior to recording the revenue receipt in its own accounts.

6) Errors

Any error made in a company's accounting system when recording a payment or bank deposit will cause a difference between the company's record of its bank account and the bank statement.

By outlining differences between a hotel's bank account balance recorded in its accounting system and the balance recorded on its bank statement, a bank reconciliation statement serves three functions:

- It provides information that will enable the hotel's accounting system record of its bank balance to be updated.

Bank reconciliation: an important internal control procedure

- It provides a check of the accuracy of the hotel's bank account record keeping system.
- It can alert management to some forms of cash embezzlement, e.g., it would highlight any instance of an employee, who is charged with the responsibility of banking cash receipts, keeping the funds for their own personal use.

To prepare a bank reconciliation statement it is necessary to have the following:

1. The previous period's bank reconciliation statement.
2. The company's record of bank account payments and receipts.
3. A bank statement covering the period (most banks now provide online electronic facilities that enable customers to access a bank statement whenever required).
4. The bank account balance per the company's accounting system at the period end.

It is important to remember that in a company's accounts, a positive bank account balance represents an asset. Therefore if the company has funds in its bank account, the balance will appear as a debit in its books. If the company's bank account is overdrawn, the balance in its books will be a credit. From the bank's perspective, however, if there are funds in an account, the company is a creditor as the bank owes money to the company. As bank statements are prepared by banks, the balance appearing on a statement will be a credit if the company has funds in its account, and it will be a debit if the company has an overdraft.

Bank reconciliation worked example

To illustrate the preparation of a bank reconciliation statement, a simplified case will be used. As part of its internal control procedures, the infrequently opened Excelsior Restaurant prepares end of month bank reconciliation statements. The following documents have been assembled in connection with the preparation of Excelsior's 31st December 20X1 bank reconciliation statement:

Note: the ticks and items appearing in italics have been added during the reconciliation process.

Excelsior Restaurant				
Bank Reconciliation				
as at 30th November 20X1 (<i>end of previous period</i>)				
Balance as per bank statement			Cr	3,600
Add: outstanding deposits				<u>652</u> ✓
				<u>\$4,252</u>
Less: unrepresented cheques	236	\$210	✓	
	242	\$ 67	✓	
	243	<u>\$114</u>		
				<u>391</u>
Balance as per cash at bank account			Dr	<u>\$3,861</u>

Internal control

Cash Receipts Record for December 20X1					
Date	Details	Bank Dr	Accounts Receivable Cr	Cash Sales Cr	Other
Dec 5	Sales	764 ✓		764	
8	M. Smith Events	832 ✓	832		
17	P. Jones Parties	215 ✓	215		
31	Sales	697		697	
Total pre-reconciliation		\$2,508	\$1,047	\$1,461	
	Interest	13			13
Total after reconciliation		\$2,521	\$1,047	\$1,461	13

Cash Payments Record for December 20X1				
Date	Cheque No	Details	\$	
Dec 2	244	Meat Emporium	232	✓
14	245	Vital Veggies	675	✓
23	246	Belle Bakery	246	✓
27	247	Freshest Fisheries	202	✓
30	248	Grocery Warehouse	859	
Total pre-reconciliation			\$2,214	
		Account Fee	12	
Total after reconciliation			\$2,226	

Account Statement Business Banking					
Loyalty Bank Ltd			Account Number 122334		
Excelsior Restaurant					
Date	Details	Debit	Credit	Balance	
Dec 1	Balance			3,600 Cr	
	Deposit		652	4,252 Cr	✓
2	236	210		4,042 Cr	✓

Bank reconciliation: an important internal control procedure

Account Statement Business Banking					
Loyalty Bank Ltd			Account Number 122334		
Excelsior Restaurant					
Date	Details	Debit	Credit	Balance	
5	Cash Deposit		764	4,806 Cr	✓
6	244	232		4,574 Cr	✓
9	242	67		4,507 Cr	✓
	Deposit		832	5,339 Cr	✓
14	245	675		4,664 Cr	✓
20	Deposit		215	4,879 Cr	✓
26	246	246		4,633 Cr	✓
31	247	202		4,431 Cr	✓
31	Interest		13	4,444 Cr	
31	Account Fee	12		4,432 Cr	

Extract of bank account record maintained in Excelsior's double entry accounting system:

Cash at Bank			
1 December balance	3,861	31 December payments	2,226
31 December receipts	<u>2,521</u>	31 December Balance	<u>4,156</u>
	<u>6,382</u>		<u>6,382</u>
1 January balance	4,156		

Using the information above, a bank reconciliation statement will now be prepared. A five-step procedure is described in this book, although it should be noted that not all hotels will use the same standardised procedure in preparing bank reconciliation statements.

The way that a bank reconciliation statement is prepared will be partially dependent on the way that a hotel's accounting system records its bank account receipts and payments. In the example described here, it is presumed that when the month end bank reconciliation statement is prepared, the hotel's bank account record in its double entry accounting system is updated for receipts and payments made during the month. In many accounting systems this end of month step will not be necessary, as the bank account record will be automatically updated as receipts and payments occur.

Internal control

Step 1: Using the bank statement and last period's bank reconciliation statement, check that last period's outstanding cheques and deposits have been recorded on the bank statement.

Cheque 243 for \$114 has not been presented. This will have to be included in the bank reconciliation for December.

Step 2: Compare the deposits appearing in the company's cash receipts record and cash payments appearing in the company's cash payments record to the bank statement.

Deposit on Dec 31 for \$697 has not been recorded by the bank. This will have to be included in the bank reconciliation for December.

Cheque 248 for \$859 has not been presented to the bank. This will have to be included in the bank reconciliation for December.

Interest of \$13 has not been recorded in the company's cash receipts record.

An account fee of \$12 has not been recorded in the company's cash payments record.

Step 3: Update the company's cash receipts and cash payments records to reflect any items recorded by the bank but not by the company.

The \$13 interest is added in italics to the bottom of the cash receipts record.

The \$12 account fee is added in italics to the bottom of the cash payments record.

Step 4: Use the company's cash receipts and cash payments records for the month as the basis for making entries to the company's bank account record that is maintained in its double entry accounting system.

Cash at bank per the company's bank account record at 31 December is \$4,156.

Step 5: Prepare the bank reconciliation statement by first recording the balance as per the bank statement, then add any outstanding deposits and deduct any cheques that have yet to be presented to the bank. This should provide a total that equals the bank balance recorded in the company's double entry book keeping system.

Excelsior Restaurant Bank Reconciliation as at 31st December 20X1

			\$
Balance as per bank statement		Cr	4,432
Add: outstanding deposits			<u>697</u>
			5,129
Less: unpresented cheques	243	\$114	
	248	<u>\$859</u>	
			<u>973</u>
Balance as per cash at bank account		Dr	<u>\$4,156</u>

A second example of a bank reconciliation exercise is provided in Financial control in [action case 6.1](#).

FINANCIAL CONTROL IN ACTION CASE 6.1

Small business owner bank reconciliation statement preparation

Cathy Makin, a friend who opened the small BriefBite restaurant six months ago, is concerned that her part time accountant might be making errors. She's noted that the surplus of BriefBite's record of bank deposits relative to payments never seems to agree with the bank statement balance. You tell Cathy to get BriefBite's record of bank deposits and payments and also the business's most recent bank statement and that you will meet her over tea to determine if there is a problem.

Two days later, Cathy comes to your office armed with the requested documents, two cups and a pot of tea. You note that the business has recorded receipts of \$38,240, and \$11,560 of payments, for the six months ended 30th June. The 30th June bank statement balance is \$26,766. Following the pouring of tea, you explain that the best approach to reconcile a business's bank statement to its accounting records is to take a structured approach such as the following.

Step 1: Check the last bank reconciliation statement for any items still outstanding from the bank statement

As this is the first bank reconciliation conducted for the business, there are no previous bank reconciliation items to be examined. The fact that BriefBite has prepared no prior bank reconciliations signifies that in the next step, the review for differences between the bank statements and the business's banking records will need to cover the whole six-month period since the business opened.

Step 2: Identify all differences between the bank statements and the business's internal record of bank deposits and payments

You find that two cheques that BriefBite has sent to suppliers for \$324 and \$171 have yet to clear the bank account, and that a bank deposit of \$401 left in the bank's night safe on 30th June does not appear on the bank statement. You inform Cathy that all these amounts will have to be included in the bank reconciliation statement that you are going to prepare, as the business records are in effect ahead of the bank statement. You also note that the bank has paid interest into the account twice, totalling \$14, but it has also charged account fees totalling \$22. You tell Cathy that BriefBite's accounting records will have to be updated to reflect the bank interest and fees, as these are examples of the accounting records lagging behind the bank statement.

Step 3: Update the business's bank deposits and payment records to reflect items recorded by the bank but not by the business

You add the interest received to the business record of receipts to give a total receipts figure of \$38,254 (\$38,240 + \$14). You then add bank fees to the business record of payments to give a total payments figure of \$11,582 (\$11,560 + \$22).

Step 4: Record the total of bank deposits and total of payments in the business bank account record maintained in the double entry accounting system

You debit the \$38,254 receipts total and credit the \$11,582 payments total in the bank account record maintained in BriefBite's double entry accounting system, resulting in a \$26,672 debit balance.

Step 5: Prepare the bank reconciliation statement

You first enter the balance as per bank statement. You then add all outstanding deposits and deduct all cheques that have yet to be presented to the bank. This should provide a total equal to the bank balance recorded in the company's double entry book keeping system.

BriefBite Bank Reconciliation as at 30th June

		\$
Balance as per bank statement	Cr	26,766
Add: outstanding deposits		<u>401</u>
		27,167
Less: unrepresented cheques	\$324	
	<u>\$171</u>	
		<u>495</u>
Balance as per cash at bank account	Dr	<u><u>\$26,672</u></u>

5) Accounting for petty cash

When a hotel needs to pay out small amounts, for things such as taxi fares, postage stamps and other small miscellaneous items, it is impractical to always pay by cheque. As a result, a petty cash fund is frequently maintained. This fund is maintained using an imprest system that involves periodically replenishing the fund with enough cash to return it to its original balance. Responsibility for overseeing the petty cash fund should be given to a responsible and trustworthy employee.

A petty cash fund is operated by: 1) establishing the fund; 2) making payments from the fund; 3) periodically replenishing the fund.

Step 1 – Establishing the fund

- A cheque is written and given to the trustworthy employee put in charge of petty cash (petty cash officer).
- The cheque is cashed and the cash placed in a lockable box and kept in a secure place by the petty cash officer.
- The establishment of the fund is recorded by debiting “petty cash” and crediting “cash at bank”.

Step 2 – Making payments from the fund

- A pre-numbered petty cash voucher is prepared for every cash payment made from the fund and held in the petty cash box until the fund is replenished.
- Each voucher shows the financial amount, the nature of the payment, the date and usually has a receipt attached in support of the amount spent (e.g., a post office receipt if stamps have been bought).

Step 3 – Replenishing the fund

- From time to time, the fund will need to be replenished.
- To replenish the fund, the amount recorded on all of the paid vouchers is totalled, then a cheque prepared for this total amount and given to the petty cash officer who cashes the cheque and puts the cash in the petty cash box.
- Each voucher is stamped as paid and transferred to the accounting department for recording.
- Expense accounts are debited in line with the information recorded on the petty cash vouchers and “cash at bank” is credited with the amount refunded to the petty cash fund.

To promote appropriate operation of the petty cash fund, random spot checks should be made to ensure that the amount of cash held in the fund plus the value recorded on petty cash vouchers in the petty cash box is equal to the agreed imprest amount. No IOU's should ever be permitted. If the petty cash fund is used to fund an IOU, it could lead to the dangerous precedent of the fund being regularly used as a funding source for any staff member experiencing a personal cash shortage.

Petty cash worked example

On 1st July 20X1 the TightWad Motel started a petty cash fund with \$200. By the end of the month TightWad had vouchers for:

Voucher Number	Purpose	Total Paid
1	Postage stamps	15.50
2	Stationery	16.00
3	Flowers for staff member	44.00
4	Office supplies	15.28

Internal control

The accounting entries to record the establishment of the fund would be as follows:

Dr	Petty Cash	200	
	Cr Cash at bank		200
<i>To establish a petty cash fund</i>			

The accounting entries to record the reimbursement of the fund on 31st July would be as follows:

Dr	Postage expenses	15.50	
Dr	Stationery expenses	16.00	
Dr	Miscellaneous expenses	44.00	
Dr	Office supplies	15.28	
	Cr Cash at Bank		90.78
<i>To reimburse the petty cash fund</i>			

6) Summary and concluding comments

In a single chapter concerned with internal control, it is impossible to outline all of the internal control challenges that can arise in a hotel. Similarly, it is impossible to overview all of the procedures that can be adopted by hotel management to strengthen internal control. As a consequence, this chapter should serve to highlight a hotel's vulnerability to fraud and embezzlement and also highlight examples of procedures that can be adopted to counter this vulnerability.

The chapter has described how some particularly significant internal control challenges arise in hotels. These challenges result from hotels conducting a large number of transactions in cash, having many activities conducted as relatively small independent operating units, having a high employee turnover level and many hotel employees working in close proximity to items susceptible to pilferage. In an effort to equip you to counter these internal control threats, the chapter has presented eleven internal control principles and outlined particular internal control procedures that can be implemented with respect to cash, purchases, inventory and payroll management. The chapter has also described how a bank reconciliation statement can be drawn up and outlined the workings of a petty cash system established on an imprest basis. It is important to recognise that other chapters in this book describe accounting-based procedures and measures that can be used to strengthen internal control. For example:

- In [Chapter 5](#) we examined the way that profitability can be analysed according to a set of profit margin ratios (e.g., gross profit relative to sales, EBIT relative to sales, etc.) that culminate in the calculation of net profit margin. A gross profit margin trend of a restaurant might reveal a sudden decline that coincides with the hiring of a new restaurant cashier. This changed gross profit margin level suggests that close observation of the cashier's work practices might be warranted.
- [Chapter 10](#) provides an overview of how cost standards can be compared to actual costs incurred. This type of analysis, if focused on food usage, can provide an insight into whether food pilferage is occurring.
- [Exhibit 13.6](#) in [Chapter 13](#) demonstrates how an aged accounts receivable schedule can be produced to counter losses resulting from old outstanding accounts becoming uncollectible.

These three examples highlight some of the many ways that accounting tools and techniques described in this book can be used to supplement a hotel's internal control armoury. As hotels come in many shapes and sizes with different activities and varying organisational structures, it is impossible to provide an "off the shelf" set of internal control procedures appropriate for all situations. Nevertheless, management would be lax if it did not ensure that the significant internal control principles and procedures outlined in this chapter are considered. For example, due to the vulnerability of cash, all restaurant managers should ensure that a daily reconciliation is made between cash register receipts and the total of bills issued to customers. Also, all hotels should prepare timely reconciliations of bank statements to internal records of deposits and payments and this reconciliation should not be conducted by an individual who handles cash deposits. [Box 6.4](#) is provided to further your appreciation of the range of internal control threats that can arise in a hotel. This box should help you to realise that you sometimes need to think creatively when determining what procedures should be adopted to counter the many internal control threats that can arise in a hotel business.

Box 6.4

Internal control procedures that can be used to counter hotel-specific theft and fraud threats

Example of theft and fraud threat	Internal control counter measure
<i>Produce delivery</i>	
Deliver low quality meat but invoice for high quality.	Chef to inspect meat and other food items that can be prone to variable quality levels.
Place high quality vegetables at top of delivery case and low quality items underneath	Delivery receiving procedures include a check made of produce placed at the bottom of delivery cases. Reject low quality produce and inform purchasing officers if certain suppliers repeatedly attempt to hide low quality produce.
<i>Front Office</i>	
Record a guest who has paid cash as intentionally not paying (i.e., "doing a runner"), and pocket the amount taken from the guest.	Ensure a credit card swipe is taken for all guests when checking in. This will facilitate contacting the guest if it is claimed they have failed to pay their account. Reviews of daily guest revenue should quickly expose the situation of a front office staff member repeatedly pocketing funds received from guests he claims have not paid.

Alter the hotel's record of an account to a lower rate following a guest settling their account and leaving.	Encourage payment by credit card.
Cash	
Cashier pockets cash and records it as a shortage.	Maintain a record of all shortages and investigate cases of staff repeatedly reporting cash shortages.
Submit personal expenditure receipts for refund claiming the expenditure is business related.	Require heads of departments to sign off on all employee refunds. Conduct periodic reviews of the amount refunded to staff and the nature of the expenses incurred.
Accounts payable	
An accounts payable clerk colludes with a supplier by getting the supplier to send inflated invoices for the clerk's approval.	Ensure purchasing officer is separate from accounts payable function. As part of internal audit procedure, check approved invoices to the details recorded on purchase orders.
The accounts payable clerk establishes a phoney company, arranges for the phoney company to submit invoices and then authorises payment to the phoney company.	As part of internal audit procedure, check approved invoices to the details on purchase orders and receiving report form. Ensure purchasing officer is separate from accounts payable function.
Restaurant activities	
Kitchen staff with access to packaged food storage areas take food home.	Analyse gross profit margins as part of an on-going check of the ratio between sales and cost of sales. Periodic random searches of staff when leaving the restaurant can be conducted as a deterrent to theft of stock.
Waiter under-bills friends sitting at a table.	Can be hard to crack this internal control challenge. If a restaurant manager is aware that a waiter is serving friends, a watchful eye should be kept on what is served and billed. Keep an eye on returning customers asking to be served by a particular waiter. For expensive wines, waiting staff could be required to sign the wine out from a bar area and periodic checks made between waiters' bills and the wine they have signed for.

Bar area	
Bar staff systematically under-pour the size of liquor servings provided to customers. They keep a record of the under-pours made in a shift and retain cash equivalent to the selling price of the under-poured amount.	Film cameras placed in bar areas with the knowledge of bar staff can represent an effective deterrent against this type of behaviour.
Bar staff brings to work a bottle of liquor and serves from the bottle and then pockets the takings.	Require all sales to be recorded on a cash register that maintains record of all sales. Camera can supplement attempts to verify this procedure is observed.

In conclusion, it is important to recognise that internal control systems can never ensure permanent or comprehensive control over all facets of a hotel's business. This is particularly evident when we recognise that it does not make commercial sense to spend more money on a new internal control procedure, if the theft or fraud that would be prevented by the procedure represents a cost to the hotel that is less than the cost of implementing and maintaining the new procedure.

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Problems

Problem 6.1

Describe the four objectives of internal control.

Problem 6.2

Describe three characteristics of hotels that signify hotel managers should have a well-developed appreciation of internal control system design.

Problem 6.3

Hong Kong's HarbourView hotel prepares monthly bank reconciliation statements. You have collected the following information in connection with preparing HarbourView's 31st December 20X1 bank reconciliation:

1. The bank account record maintained in HarbourView's double entry accounting system has a 31st December 20X1 debit balance of \$33,376 (this is after the hotel's record of receipts and payments for the month have been recorded in the account).
2. Bank statement balance on 31st December 20X1 is \$34,290 credit.
3. Receipts for 31st December totalling \$1,240 have been recorded in HarbourView's books, but have yet to be deposited at the bank.
4. Cheques issued by the hotel that have not cleared the bank as at 31st December total \$2,170.
5. The bank statement indicates that the HarbourView account has been charged with fees of \$32 during December.
6. The 31st December bank statement indicates interest of \$16 has been credited to the HarbourView account during the month.

Required:

Prepare HarbourView hotel's 31st December 20X1 bank reconciliation statement.

Problem 6.4

Describe three ways that bank accounts greatly facilitate internal control over cash.

Problem 6.5

Following your recent appointment to the CrownTowers hotel group internal audit department, you have been assigned to conduct an internal control analysis of the Kuala Lumpur CrownTowers hotel. A year ago, the hotel appointed a new General Manager who immediately changed several of the hotel's systems. He justified these changes on the basis that cost savings could be achieved through more streamlined procedures. In the course of describing some of his cost cutting initiatives, the General Manager tells you:

When I arrived I found some arrangements that really were unnecessarily complex. Two areas I've streamlined relate to cash management and purchasing. With respect to cash management, I'm now reaping economies of scale by having one person take care of collecting cash, banking the money collected and recording the deposits in our accounting system. This is saving time and energy, as we don't need to keep passing information from one person to another. Similarly, with respect to purchasing food items, I now have one person placing our purchase orders. To save on frustration and miscommunication with information being passed around, I get the same person to do a check that the goods ordered have all arrived in good condition. Once he's satisfied that the delivery is in order, he then authorises the supplier's payment.

Required:

Outline any internal control shortcomings that you see in the system changes made by the new General Manager of the Kuala Lumpur CrownTowers hotel.

Problem 6.6

Steve Fitchett has been managing the Kenyan SafariCamp hotel's souvenir and camera supplies shop for 11 years. Sue Rodwell, who acts as shop assistant, operates the cash register and records the daily takings on a cash receipts form that she signs and gives to Steve. As this is a relatively small shop, Steve performs most of the shop's management functions including preparing bank account deposit documentation and preparing the shop's monthly bank reconciliation statement. Stock in the shop is reordered by Steve when items appear low, as no on-going account of the items held in stock is maintained. The stock balance is determined at the end of the year by way of a stock count, conducted by a member of the accounts team.

Required:

Identify and describe any internal control shortcomings you see in this SafariCamp hotel shop scenario.

Problem 6.7

There is one or more internal control weakness in each of the following situations. Identify and describe the weaknesses.

- a) The multinational Extravagant hotel group has maintained a four-person internal audit team for several years. In addition to conventional internal audit activities, the head of the audit group has always impressed on her staff the importance of gauging the efficiency of management in the hotels audited. Following an international decline in hotel trade that has spanned two years, the Extravagant group's Chief Accountant has decided to close the internal audit team as a cost-saving measure.
- b) The manager of the 8tillLate bar is responsible for purchasing bar stock, authorising bar purchase invoices for payment and overseeing periodic counts of the bar inventory.
- c) Customers at the SublimeSpice restaurant seat themselves in order to save on the cost of a staff member showing customers to their seats.
- d) Table cleaners are employed at the MemorableMunch restaurant. The restaurant has a policy of dividing tips in the ratio 20 per cent for table cleaners, 60 per cent for the waiter or waitress serving the table and 20 per cent for the kitchen staff.

Problem 6.8

A single office supplies cupboard serves the 22 administrative staff at the RegalRegis hotel in Bombay. All office staff members have access to the cupboard. The hotel General Manager has become increasingly concerned by the amount of office supplies being used and feels too much of the purchased office supplies are being taken home by the administration staff. Presently, staff help themselves to supplies and record the supplies taken on a note pad attached to the inside of the cupboard door. The General Manager has suggested to you that a new staff member be hired to handle all issues of office stationery to staff as well as stationery purchases.

Required:

Explain whether you feel the General Manager's suggestion is appropriate and what steps you feel should be implemented to achieve an appropriate level of internal control over office supplies.

Internal control

Problem 6.9

Nick Sakich has been appointed petty cash officer for Vancouver's ShaugnassySlick hotel. A petty cash fund of \$300 operating under the imprest system has been authorised by the hotel's chief accountant. Nick established the fund by cashing a hotel bank account cheque for \$300 on 1st June. The following payments were made through June.

June 2	Stationery purchased from Seigneuret supplies	\$24.25
June 5	Taxi fare paid for job interviewee (Dawn Enwad)	\$34.50
June 8	Bought stamps from post office	\$28.00
June 10	USB stick purchase for Logan Philip	\$64.90
June 16	Birthday cake for member of staff (Miranda Smythe)	\$31.30
June 20	Purchase of print cartridge for Matthew Lansdowne	\$44.20

Required:

- Prepare the accounting entries required to record the establishment of the petty cash fund.
- Prepare the accounting entries required to record the replenishment of the petty cash fund on 28th June.

Problem 6.10

The following documentation for the QuaintCottage conference retreat that is located in the English Cotswolds has been made available to you:

- QuaintCottage's Bank Reconciliation Statement as at 30th April 20X1
- QuaintCottage's Cash Receipts record for May 20X1
- QuaintCottage's Cash Payments record for May 20X1
- QuaintCottage's Bank Statement for May 20X1

Draw on this documentation to:

- Prepare a bank reconciliation for QuaintCottage as at 31st May 20X1.
- Update QuaintCottage's bank account record maintained in its double entry accounting system (use a "T-account" presentation).

QuaintCottage Bank Reconciliation as at 30th April 20X1			
Balance as per bank statement		Cr	9,253
Add: outstanding deposits			<u>2,215</u>
			11,468
Less: unpresented cheques	5367	£1,345	
	5422	£899	
	5423	<u>£2,300</u>	
			<u>4,544</u>
Balance as per cash at bank account		Dr	<u>£6,924</u>

Cash Receipts Record for May 20X1						
Date	Details		Bank Dr	Discount Allowed Dr	Accounts Receivable Cr	Sales Cr
May 2	J Smith		1,900		1,900	
10	Sales		2,320			2,320
15	T Tops		1,260		1,260	
22	Sales		3,500			3,500
30	P Limon		860		860	
	Totals		£9,840		£4,020	£5,820

Cash Payments Record for May 20X1						
Date	Cheque No	Details		Bank	Accounts Payable	Wages
				Cr	Dr	Dr
May 5	5424	Grocery Green		1,450	1,450	
9	5425	GT Electric		2,100	2,100	
14	5426	Murphys Liquor		565	565	
22	5427	Wages account		1,630		1,630
29	5428	Grocery Green		3,950	3,950	
		Totals		£9,695	£8,065	£1,630

Account Statement Business Banking					
<i>Honourable Bank Ltd</i>			Account 55555		
				QuaintCottage	
Date 20X1	Details	Debit	Credit	Balance	
May 1	Balance			£9,253 Cr	
	Deposit		2,215	11,468 Cr	
2	5367	1,345		10,123 Cr	
	Deposit		1,900	12,023 Cr	
4	5423	2,300		9,723 Cr	
9	5424	1,450		8,273 Cr	

Internal control

<div> <div>Account Statement</div> <div>Business Banking</div> </div>					
<i>Honourable Bank Ltd</i>			Account 55555		
				QuaintCottage	
Date 20X1	Details	Debit	Credit	Balance	
May 10	Deposit		2,320	10,593 Cr	
15	Deposit		1,260	11,853 Cr	
	5425	2,100		9,753 Cr	
22	Deposit		3,500	13,253 Cr	
	Transfer to account 55556	1,630		11,623 Cr	
30	Account keeping fees	15		11,608 Cr	
31	Interest		41	£11,649 Cr	

Problem 6.11

The CrystalIce Hotel in Quebec has just appointed Max Hargreaves to act as petty cash officer for its recently established petty cash account. The fund, which is being run under an imprest system, was initiated by Max cashing a hotel bank account cheque for \$400 on 1st May. The following payments were made through May.

3 May	Train ticket refunded for a job interviewee	\$42.50
7 May	Flowers bought for a retiring staff member	\$55.00
7 May	Pizza delivery for retiring staff member party	\$88.00
12 May	Stationery purchased from Eckington supplies	\$22.50
18 May	Bought stamps from post office	\$30.00
22 May	Kitchen cleaning detergent purchased	\$8.40
30 May	Coffee and biscuits purchase	\$22.60

Required:

- Prepare the accounting entries required to record the establishment of the petty cash fund.
- Prepare the accounting entries required to record the replenishment of the petty cash fund on 31st May.

Problem 6.12

The TeaHouse Retreat has a \$350 petty cash fund that is maintained on an imprest system basis. On 31st January the fund is holding \$130 in cash and petty cash vouchers for a \$70 travel expense, \$60 delivery expense and \$90 for kitchen supplies.

Required:

Prepare the accounting entries required to record the replenishment of the petty cash fund on 31st January.

Problem 6.13

The “Cash at Bank” account in Fellini’s Eco Retreat internal accounting system reports a debit balance of \$1,075 on 30th November. Appearing in this account are three outstanding cheque payments totalling \$600 that have yet to clear Fellini’s bank account, as well as a \$400 bank deposit that has yet to be recorded by Fellini’s bank. Fellini’s most recent bank statement reported a \$2,000 credit balance on 30th November. Included in the bank statement was a 29th November direct deposit receipt of \$700 that had yet to be reflected in Fellini’s internal records. Also not reflected in the internal records was \$30 bank account interest that was received on 30th November and an end of month bank fee of \$5.

Required:

- a) Update Fellini’s “Cash at Bank” record to reflect items recorded by the bank statement that have yet to be recorded in Fellini’s internal recording system.
- b) Prepare the Fellini’s Eco Retreat bank reconciliation at 30th November.

Cost management issues

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. how the range of decision making and control situations confronted by managers results in many different cost classifications,
2. what is meant by an opportunity cost,
3. what is meant by direct and indirect costs,
4. methods that can be used to allocate indirect costs to departments,
5. what is meant by fixed and variable costs,
6. what is meant by incremental and sunk costs.

1) Introduction

This chapter focuses on the different ways **costs are classified in order to support management decision making and organisational control**. When referring to costs in everyday hotel affairs, managers use terms suggesting a multitude of cost classification schemes. These classifications include: fixed and variable costs, direct and indirect costs, opportunity costs, incremental costs, sunk costs, non-controllable and controllable costs. It is not surprising that staff without any accounting background become somewhat bewildered by the existence of so many cost classifications.

It is important to recognise that the range of cost classifications used results from the wide diversity of management decision making and control situations that can arise. Rather than attempting to memorise widely used cost classifications, however, it is recommended that you focus on common control and decision making issues that can arise and how cost information can be tailored to suit the particular management issue at hand. This chapter provides an overview of several typical decision making and control scenarios that can arise and the main cost classification schemes that have been developed in light of these scenarios. Before considering this range of scenarios, it is important to recognise that accountants refer to any “thing” that is to be costed as a “cost object”. The range of cost objects that one could confront in a career is limitless. Cost objects that are generally monitored in the hotel industry include: cost of cleaning a room, cost of processing a unit of laundry and food cost in a meal. To further

highlight the range of cost objects that can be encountered, five cost objects that could be referred to in restaurant management are summarised in [Box 7.1](#).

Box 7.1

Exploring cost objects: examples found in large restaurants

When considering costing for different purposes, it is important that we recognise what it is that we are costing. The “thing” that is being costed is called a cost object. For a large restaurant, possible cost objects include:

1. cost of staffing a shift (we might be considering dropping a shift),
2. cost of food in a meal (for the purposes of controlling costs, we might like to compare actual cost to budgeted cost),
3. cost of providing and serving a meal (we might like this information to aid menu pricing decisions),
4. cost of cleaning the restaurant (we might like this information if we were considering outsourcing this function to a cleaning specialist),
5. cost of overhauling the kitchen (we might be considering replacing kitchen infrastructure).

2) Management's need for cost information

Accounting information is a resource that has a cost. It is important to recognise that organisational resources are expended collecting and analysing cost information. We should not spend more money on collecting and analysing cost information than the decision making or control benefit that will derive from the costing information. We will begin this chapter's review of widely used cost classifications by first considering some general examples of how cost information can be used in management decision making and control.

a) Decision making

Cost information can be important for decisions such as:

- Should we close a shop?
- Should we outsource laundry activities?
- What rate should be charged for a room?
- Should we promote single room sales more than double room sales?

Cost classification issues that can arise in connection with decision making include the need to distinguish between fixed and variable costs. As will be seen below, we may want to distinguish between fixed costs and variable costs because in the short run it can be in the organisation's interest to accept a room rate that covers only the variable cost of selling one night's accommodation.

b) Control

When monitoring the performance of a departmental head, it is desirable that we distinguish between controllable costs (those which the department head can influence) and non-controllable costs. If we fail to make this distinction, the performance measure used will not represent an appropriate proxy for appraising the department head's managerial judgement and effort. As department heads tend to be acutely aware of inappropriately calibrated performance measures, frustration and resentment typically result from poorly designed performance measurement systems.

The need for departmental control also raises the issue of how best to deal with those hotel costs that are not readily traceable to a department that sells services. For example, should a portion of training costs be allocated to the F&B and rooms departments? While both these departments benefit from hotel training programmes provided, can a sound basis be developed for allocating training costs to other departments? As will be seen below, costs that are readily traceable to the cost object in question (in this case the F&B and rooms departments), are referred to as direct costs, and costs that are not readily traceable to the cost object are referred to as indirect costs.

3) Major cost classification schemes

In this section, five cost classification schemes are described. They are:

- a) outlay vs. opportunity costs,
- b) direct vs. indirect costs,
- c) variable vs. fixed costs,
- d) controllable vs. non-controllable costs,
- e) incremental vs. sunk costs.

a) Outlay vs. opportunity costs

An outlay cost is “real” in the sense that it involves a disbursement of funds. An opportunity cost does not involve a disbursement of funds, it is, however, a cost to the organisation in the sense of an opportunity that is lost. The nature of opportunity cost is illustrated via a hypothetical scenario in [Box 7.2](#).

Box 7.2

The nature of opportunity cost

The nature of opportunity cost can be illustrated by a small worked example. Imagine London's Victoria hotel is appraising whether to open a new restaurant that will require floor area that is currently leased out to a souvenir vendor for £5,000 per annum. If the Victoria proceeds with the proposed restaurant development, it will no longer be able to lease out the floor space and will therefore lose the £5,000 per annum revenue. This loss is described

as an “opportunity cost”, as although the Victoria does not have to pay £5,000, it will have lost the opportunity of receiving £5,000.

It is important that this potential loss of the £5,000 annual lease revenue is considered at the time the restaurant development decision is taken. However, if the hotel decided to expand the restaurant, the accounting system would not continue to record the £5,000 opportunity cost. To record all opportunity costs on a continuing basis would be an impossible exercise, as every time an organisation assigns a resource to a particular purpose (the resource could be cash, floor space, people, etc.), the organisation has incurred the opportunity cost associated with not assigning the resource to some other purpose.

b) Direct vs. indirect costs

As already noted, a direct cost is readily traceable to a particular cost object, while an indirect cost is not easily traced to a cost object. The term “overhead cost” is also widely used and means the same as “indirect cost”. A cost may be direct with respect to one cost object, but indirect with respect to another; e.g., the cost of a hotel’s sponsorship of a local sporting event is a direct cost with respect to the hotel’s marketing department (one cost object), but will be indirect with respect to rooms and restaurant meals sold (another set of cost objects).

Exhibit 7.1

HighRollers’ unallocated income statement for the three months ending 31 December 20X1

	Casino	Rooms	Food & Beverage	Total
Revenue	\$ 700,000	\$ 200,000	\$ 100,000	\$ 1,000,000
Cost of sales			20,000	20,000
Labour	210,000	41,000	25,000	276,000
Other direct costs	<u>65,000</u>	<u>8,000</u>	<u>7,000</u>	<u>80,000</u>
Departmental profit	<u>\$ 425,000</u>	<u>\$ 151,000</u>	<u>\$ 48,000</u>	<u>\$ 624,000</u>
Indirect costs:				
Advertising				60,000
Senior management salaries & administrative support				120,000
General building maintenance				40,000
Training and personnel				35,000
Transportation				<u>10,000</u>
Total indirect costs				<u>265,000</u>
Profit before tax				359,000
Tax				<u>107,700</u>
Net Income				<u><u>\$ 251,300</u></u>

Cost management issues

The direct vs. indirect cost classification is significant when designing a departmental performance reporting system. Some hotel accounting systems do not allocate indirect costs to departments while others attempt allocation of some indirect costs. The manner in which indirect cost allocation can be achieved will be illustrated through the following “HighRollers” scenario.

Imagine HighRollers, a large Chicago hotel and casino complex with three profit-making departments: F&B, rooms and casino. Since its construction ten years ago, HighRollers’ performance reporting system has not allocated indirect costs to these three profit centres. This is evident from the copy of HighRollers’ most recent quarterly performance report reproduced below as [Exhibit 7.1](#).

HighRollers’ General Manager has had a concern that some of the complex’s managers are not directing sufficient attention to indirect cost containment. In addition, he feels that some of the profit centres may be setting prices without due regard to ensuring a sufficient margin is earned to cover indirect costs as well as direct costs. He feels that if indirect costs were to be allocated to the profit centres, there would be a greater incentive for the profit centre managers to hold other staff in the complex more accountable for efficient indirect cost management. In addition, the General Manager feels that allocating indirect costs to the profit centres would result in managers setting revenue targets that result in adequate profit margins earned on all costs, not just direct costs.

As a result, the General Manager has approached the Financial Controller and asked that the performance report presented as [Exhibit 7.1](#) be redesigned in a way that results in the allocation of the indirect costs to the three profit centres. Following this request, the Financial Controller collected information that she felt provided the basis for a rational allocation of the indirect costs. The indirect cost allocation bases used, together with the rationale for their usage, are outlined in [Exhibit 7.2](#).

Following development of the indirect cost allocation bases, the Financial Controller produced a revised hotel performance report for the three months ending 31st December 20X1 ([Exhibit 7.3](#)). In this report, the indirect costs have been allocated to the three profit centres in a manner consistent with the rationale outlined in [Exhibit 7.2](#).

The performance report that includes the allocation of indirect costs ([Exhibit 7.3](#)) indicates a loss of \$2,000 for the F&B department. Be careful not to conclude from this that the complex would be more profitable if the F&B department were to be closed. Two factors highlight why this view is inappropriate. Firstly, from a commercial viewpoint, it would appear naïve to suggest a casino could be operated successfully in the absence of food and beverage services. Secondly, closure of the F&B department will not result in the elimination of all indirect costs that have been allocated to the F&B department. Note the nature of the indirect costs that have been allocated. It may well be the case that none of the costs allocated to F&B would disappear if the department were to be closed. It is more likely that following closure of the F&B department, most of the indirect costs that had been allocated to F&B would remain. This would mean that these indirect costs would then have to be allocated to the two remaining departments instead of to F&B. If the F&B department were closed, it is highly likely that the decline in the casino and rooms profits resulting from reallocating the costs that had formerly been allocated to F&B would be greater than the \$2,000 loss currently recorded for the F&B department.

Most accountants argue that allocation of indirect costs is appropriate, so long as a sound basis for conducting the allocation can be identified. As was seen in the HighRollers case, advocates of overhead allocation claim that it results in a more complete picture of departmental profit and will prompt managers to set prices at levels that cover indirect as well as direct costs. Further, it can result in managers of profit centres holding other service centre

Exhibit 7.2

Methods used to allocate HighRollers' indirect costs to profit centres

Amount allocated to profit centres

Indirect cost	Rationale for the indirect cost allocation basis used	Casino	Rooms	F&B
Department-specific advertising	\$20,000 of the \$60,000 advertising expenditure was found to be specific to the complex's casino activities. This will all be allocated to the casino.	\$20,000		
General advertising	The remaining advertising expenditure (\$40,000) was general, complex-wide advertising. This is to be allocated to departments based on their proportion of the complex's total sales (i.e., casino: 70%, rooms: 20% and F&B: 10%).	\$28,000 (.7 × \$40,000)	\$8,000 (.2 × \$40,000)	\$4,000 (.1 × \$40,000)
Senior management salaries and admin. support	Senior management have indicated that they can provide a reasonable estimate of time spent on each profit centre's affairs. On average senior management's time is distributed as follows: 50% on casino, 25% on rooms and 25% on F&B.	\$60,000 (.5 × \$120,000)	\$30,000 (.25 × \$120,000)	\$30,000 (.25 × \$120,000)
General building maintenance	Building maintenance is to be allocated to departments based on their relative floor space occupation. The casino occupies 15% of the complex's floor space, rooms occupy 80% of floor space and F&B occupies 5%.	\$ 6,000 (.15 × \$40,000)	\$ 32,000 (.8 × \$40,000)	\$ 2,000 (.05 × \$40,000)
Training and personnel	Most of the training and personnel department's activities are generated by staff turnover. In the last year the casino hired 50 new staff, rooms hired 20 new staff and F&B hired 30 new staff. Training and personnel costs are to be allocated based on these proportions.	\$17,500 (.5 × \$35,000)	\$7,000 (.2 × \$35,000)	\$10,500 (.3 × \$35,000)
Transportation	Staff transportation costs are to be allocated according to the relative number of equivalent full-time staff in each department. On 31st December 20X1 the number of full time staff in each department was: Casino: 100; Rooms: 30; F&B: 70.	\$5,000 (.5 × \$10,000)	\$1,500 (.15 × \$10,000)	\$3,500 (.35 × \$10,000)

Exhibit 7.3**HighRollers' income statement based on allocated indirect costs for the three months ending 31 December 20X1**

	Casino	Rooms	Food & Beverage	Total
Revenue	\$ 700,000	\$ 200,000	\$ 100,000	\$ 1,000,000
Cost of sales			20,000	20,000
Labour	210,000	41,000	25,000	276,000
Other direct costs	<u>65,000</u>	<u>8,000</u>	<u>7,000</u>	<u>80,000</u>
Profit before indirect costs	\$ 425,000	\$ 151,000	\$ 48,000	\$ 624,000
Indirect costs:				
Advertising	48,000	8,000	4,000	60,000
Senior management salaries & administrative support	60,000	30,000	30,000	120,000
General building maintenance	6,000	32,000	2,000	40,000
Training and personnel	17,500	7,000	10,500	35,000
Transportation	<u>5,000</u>	<u>1,500</u>	<u>3,500</u>	<u>10,000</u>
Total indirect costs	<u>136,500</u>	<u>78,500</u>	<u>50,000</u>	<u>265,000</u>
Income before tax	288,500	72,500	(2,000)	359,000
Tax				<u>107,700</u>
Net income (profit)				<u>\$ 251,300</u>

managers more accountable for controlling indirect costs. If no rational basis can be found for allocating a particular overhead, however, it is generally accepted that rather than allocating the cost on a highly arbitrary basis, it is better not to attempt an allocation of the cost.

c) Variable vs. fixed costs

A key determinant of many costs is the volume of sales achieved. If we double sales, some costs will double, e.g., food used in meals served; such costs are termed “variable costs”. Other costs will be unaffected by the increased output (e.g., senior staff salaries, grounds maintenance, depreciation of fixed assets, etc.). Those costs that do not alter with changed levels of sales activity are termed “fixed costs”. Some costs have a fixed and a variable component, these are termed “semi-variable” or “mixed” costs. A marketing manager’s salary that comprises a fixed monthly amount and a commission component that varies according to the number of sales made is an example of a semi-variable cost.

There are several decision making scenarios necessitating the classification of costs into variable and fixed. One of these is in connection with breakeven analysis, which is a particular analytical technique which will be addressed in the next chapter. Three other scenarios where the distinction between variable and fixed costs is important are:

- a) the danger of treating fixed costs as variable when considering a range of activity levels for the organisation,
- b) short-term pricing decisions,
- c) the decision to close a hotel during the off season.

Following a description of how an organisation can classify its costs into fixed and variable, these situations where an appreciation of the distinction between fixed and variable costs is important will be described.

Determining the variable and fixed cost functions

An approximation of an organisation's fixed and variable costs can be determined relatively easily using a technique generally referred to as the "high-low" method. An example illustrating the application of this method is presented in [Box 7.3](#).

The high-low method has the advantage of being simple to calculate and serves as a rough approximation of the cost function. However, only two observations – the highest and the lowest points – are considered and it may not always be the case that these two observations are representative of the underlying fixed and variable cost relationship throughout the year. More sophisticated approaches such as regression analysis, which is a statistical technique generally available on most statistical computer software packages, can also be used. The technical aspects of this technique are not reviewed here as the steps necessary to complete the exercise will depend on the software used. The interested reader will find further discussion of regression analysis in most introductory statistics books.

A RANGE OF ACTIVITY LEVELS AND THE DANGER OF TREATING FIXED COSTS AS VARIABLE COSTS

A trap that some managers and accounting students fall into relates to treating fixed costs as if they are variable costs. As can be seen from the example provided in [Box 7.4](#), you fall into this trap if you attempt to interpret average cost per unit information in the context of a range of activity levels.

Short-term pricing decisions

The distinction between fixed and variable costs is also important when considering short-term pricing situations. The example in [Box 7.5](#) shows that in the short term it can be justifiable to accept a price that covers variable cost and not total cost.

Box 7.3

Determining fixed and variable costs using the “high-low” method

Imagine the SqueakyClean Hotel, a fell walkers retreat located in the English Lake District. Identified below are data relating to SqueakyClean’s housekeeping costs for January to June 20X1.

Month	Housekeeping costs £	Number of rooms cleaned
January	17,000	2,100
February	15,500	1,800
March	16,250	1,950
April	16,450	1,990
May	16,500	2,000
June	16,775	2,055

To use the high-low method, we compare across the organisation’s busiest and quietest periods. It can be seen that January is the busiest month and February is the quietest month. By determining the changed level of activity and also the change in costs across these two months, we can determine the variable cost per unit. SqueakyClean’s variable housekeeping cost per room can be determined as follows:

When 2,100 rooms were cleaned (highest level of activity), cost = £17,000.

When 1,800 rooms were cleaned (lowest level of activity), cost = £15,500.

It therefore costs an extra £1,500 (£17,000 – £15,500), to clean an extra 300 rooms (2,100 – 1,800).

Therefore, the variable cost per room is $£1,500 \div 300 = £5$ per room.

Having determined that the variable cost per room is £5, determining the fixed costs is straightforward:

As $\text{Total cost} = \text{Total Variable cost} + \text{Total Fixed cost}$,
 $\text{Total cost} - \text{Total Variable cost} = \text{Total fixed cost}$

SqueakyClean’s total housekeeping costs for January are £17,000, and their variable housekeeping costs are £10,500 (£5 × 2,100 rooms). Fixed housekeeping costs must therefore be £6,500 (£17,000 – £10,500).

Box 7.4

The danger of treating average cost per unit as a constant

Be careful if you are provided with total cost information and use it to determine an average unit cost. Danger awaits if you attempt to use this information in the context of different levels of activity. To demonstrate how easy it can be to fall into this trap, work through this small exercise.

Before reading any further, place your right hand over the final two columns appearing in the schedule of data at the bottom of this box (i.e., that part of the schedule relating to cleaning 100 rooms). From the schedule, which concerns room cleaning costs, you will note that cleaning 50 rooms requires \$250 of labour costs and \$450 of depreciation. From this we can easily determine that the average cost of cleaning a room is \$14 ($\$700 \div 50$). Now, are we safe to conclude that if twice as many rooms are cleaned it will cost us \$1,400 (i.e., $\$14 \times 100$)? Unfortunately many managers and accounting students fall into this trap. They believe that once they have calculated average cost at one level of activity, this number can be used to determine total cost across a range of different activity levels.

You can now take your hand away from the page. Note that doubling the level of activity to 100 rooms cleaned does not result in the total cost doubling. Part of the costs have doubled, i.e., the total labour cost, as labour is variable. However, depreciation is a fixed cost and it is the same in total for each period of time, regardless of the level of activity in that period. The key to understanding this little conundrum involves recognising that the cost of cleaning a room is \$14 only when 50 rooms are cleaned. If more rooms are cleaned, the per room cost of cleaning goes down because the fixed cost of \$450 is spread across more rooms, i.e., when 100 rooms are cleaned, the average cost per room is \$9.5 ($\$950 \div 100$). Be careful in your organisation if someone quotes an average cost for making an item or performing a particular activity. If fixed costs are present (some of an organisation's costs are invariably fixed), the average cost for making the item or for performing the activity will change depending on the activity level.

	<u>Cleaning 50 rooms</u>		<u>Cleaning 100 rooms</u>	
	<u>Total</u>	<u>Per room</u>	<u>Total</u>	<u>Per room</u>
Labour	\$250	\$5.0	\$500	\$5.0
Equipment depreciation	<u>\$450</u>	<u>\$9.0</u>	<u>\$450</u>	<u>\$4.5</u>
	<u>\$700</u>	<u>\$14.0</u>	<u>\$950</u>	<u>\$9.5</u>

Box 7.5

Using variable cost as a short-term pricing threshold

Imagine that a restaurant in Turin has a monthly output of 20,000 meals which are sold for an average of €20 per meal. Variable cost per meal is €8 and fixed costs per month are €40,000. Mr Bozo, the restaurant's accountant, has worked out the average cost per meal to be:

$$€8 + (€40,000 \div 20,000) = €10$$

The restaurant currently has excess capacity that would allow it to serve a further 5,000 meals per month, and during a local senior citizens' convention that is running for a month, the restaurant has received a one-off offer to provide 4,000 meals for €9.50 per head. Bozo believed that the offer should be rejected as it fails to cover the cost per meal. Is he right?

An easy way to tackle a problem such as this involves taking an incremental perspective, i.e., identify all changes that will occur if the offer is accepted. If the offer is accepted, changes that will occur are:

	€	Profit impact
Increased total variable cost (4,000 × €8)	32,000	Negative
Increased fixed cost	0	
Increased revenue (4,000 × €9.50)	<u>38,000</u>	Positive
Net impact on profit	<u><u>6,000</u></u>	Positive

On the basis of a short-term profit impact appraisal, the offer could be accepted as it will increase profit by €6,000 (€38,000 – €32,000). It should be acknowledged, however, that this represents a short-term profitability impact analysis only. The analysis has not considered longer-term marketing issues such as whether the convention organiser might return and bargain hard for a discounted price again in the future, and also whether there is a likelihood that existing clients will become dissatisfied and start seeking lower prices if they become aware of the rates charged to the senior citizens.

This use of variable cost in short-term pricing is particularly pertinent to room rates charged during the off-season. If we have spare room capacity and wish to adopt a very aggressive room pricing strategy in an effort to increase occupancy levels, an argument can be made for dropping the room rate to a level just above the variable cost associated with room occupancy. If the sale of one more room results in extra variable costs of \$10 (most of this would be the cost of cleaning the room following checkout), then an argument can be made for drop-

ping the room rate to a level just above \$10. If one extra room was sold at a rate of \$11 then \$1 additional profit will result (\$11 – \$10). Again, significant marketing issues would arise if such an aggressive room pricing strategy were to be adopted. Nevertheless, variable cost information can be important in the context of short-term pricing decisions. This issue is further explored in [Chapter 12](#).

The decision whether to close during the off season

As many hotel operations experience significant seasonality, management can confront the issue of whether to close a property for a period of the year. As will be apparent from the following example, drawing a distinction between fixed and variable costs provides useful insight when deciding whether to close during a quiet period. Imagine the RockiesResort, a Canadian mountain lodge that has a high occupancy of skiers in the winter months and a low occupancy in the summer months. During winter months, a relatively high room rate is charged and average occupancy levels are 90 per cent. During the summer months, average occupancy is 30 per cent and a lower room rate is charged. [Exhibit 7.4](#) analyses RockiesResort's profitability in the summer and winter seasons.

Exhibit 7.4

RockiesResort income statement analysis

	November–April	May–October	Total
Sales	<u>\$500,000</u>	<u>\$100,000</u>	<u>\$600,000</u>
Variable costs	90,000	30,000	120,000
Semi-variable costs			
Electricity	10,000	4,000	14,000
Maintenance	8,000	4,000	12,000
Fixed costs	<u>90,000</u>	<u>90,000</u>	<u>180,000</u>
Total costs	<u>198,000</u>	<u>128,000</u>	<u>326,000</u>
Net income	<u>\$302,000</u>	<u>\$(28,000)</u>	<u>\$274,000</u>

Variable costs move in line with occupancy levels. With respect to the semi-variable costs, there is a fixed electricity charge of \$1,000 per six-month period, and maintenance costs have a fixed cost component of \$2,000 per six-month period.

Although it appears from [Exhibit 7.4](#) that the hotel is making a loss of \$28,000 during the summer months, it would be wrong to conclude from this that the hotel should be closed during this time. Closure of the hotel in the summer period would not result in the removal of the fixed costs associated with the summer period. Similar to the approach taken earlier, this type of problem can be approached by conducting an incremental analysis that identifies all factors that would change following closure in the summer. If the hotel were to close, the following changes would occur:

Cost management issues

	\$	Impact on annual profit
Lost revenue	100,000	Negative
Reduction in variable costs	30,000	Positive
Reduction in electricity (\$4,000 – \$1,000)	3,000	Positive
Reduction in maintenance (\$4,000 – \$2,000)	<u>2,000</u>	Positive
Net impact on profit	<u>\$65,000</u>	Negative

From this analysis we can conclude that closing the hotel in the summer would reduce profit for the year by \$65,000. As a result, the hotel should be kept open during the summer months.

d) Controllable vs. non-controllable costs

In responsibility accounting, managers should only be held accountable for costs that they can control. In a manager's performance report, an attempt should be made to segregate controllable costs from non-controllable costs. The issue of responsibility accounting is explored in greater detail in [Chapter 9](#).

e) Incremental vs. sunk costs

In some decision making situations, the distinction between incremental and sunk costs can be important. As can be seen from financial decision making in [action case 7.1](#), sunk costs are irrelevant in many decision making situations. This is because “sunk” is the term used to describe a cost that has been incurred in the past and is now irreversible. A good example of a sunk cost is depreciation. This is because it is a cost that relates to the purchase of an asset at an earlier time. As the fixed asset purchase cannot be reversed, the depreciation charge cannot be avoided.

4) Qualitative and behavioural factors in management decisions

All of the issues addressed above have been approached by conducting quantitative analyses. The financial data provided by the accounting system frequently plays a powerful information role as it carries an air of “objectivity”. Despite this, it is important to remember that qualitative factors must also be appraised. In the outsourcing decision making scenario outlined above, it might be that the cost saving associated with purchasing outside would have to be very significant before the F&B manager is willing to sacrifice a position of being able to guarantee continued availability of pastries. In addition, quality issues are obviously important in the context of an outsourcing decision, and marketing issues are obviously important in decisions such as what price to charge and whether a hotel should close during the off-season. Clearly, an astute manager will always attempt to strike an appropriate balance between quantitative and qualitative analyses when making decisions.

5) Summary

In this chapter we have reviewed different ways that costs can be classified. The reason that several cost classification schemes exist is that there is a wide diversity of decision making and control situations that can arise. Decision making situations requiring a particular analysis of

FINANCIAL DECISION MAKING IN ACTION CASE 7.1

The F&B manager and the decision to outsource

It is important that decision makers appreciate that cost information has to be tailored to suit the particular circumstances of each decision confronted. Imagine an F&B manager is considering outsourcing pastry production. A local baker has offered to supply pastries at a cost of \$7.50 per tray. Data pertaining to the F&B department's pastry making activities for last year follows:

Direct materials	\$20,000
Direct labour	\$110,000
Variable overhead	\$10,000
Fixed overhead	\$90,000
Trays of pastry produced	20,000

The direct materials, labour and variable overhead can all be expected to be incremental (i.e., will change if pastry production is ceased). If fixed overhead comprises depreciation on ovens used in pastry production, the \$90,000 can be treated as a sunk cost (non-incremental) and not relevant to the decision. We will assume the ovens cannot be sold due to prohibitively high removal costs. Based on this data, it appears undesirable to purchase outside, as the incremental cost of continuing to make the 20,000 trays of pastries is \$140,000 (\$20,000 + \$110,000 + \$10,000) which is less than the \$150,000 ($7.5 \times 20,000$ trays) it would cost to buy outside.

cost information include the setting of prices, the decision whether to close during the off season as well as the decision whether to outsource a function or activity.

Having read the chapter you should now know:

- cost analysis has to be designed in accordance with the specific needs of each decision making scenario at hand,
- when opportunity costs should be appraised,
- the distinction between direct and indirect costs,
- methods that can be used to allocate indirect costs to departments,
- the importance of distinguishing between fixed and variable costs,
- the significance of distinguishing between incremental and sunk costs.

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Cost management issues

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Problems

Problem 7.1

Why do so many different classifications of cost arise in accounting?

Problem 7.2

The conference department of the MerryWeather hotel in Inverness, Scotland has fixed costs of £360 per day. A local university is seeking a quote in connection with a conference it is planning to hold next year. The university would like the hotel to provide morning coffee, lunch, afternoon tea and to prepare conference materials to be distributed to all conference attendees. The hotel's cost of providing food and drink during the day is £7 per attendee. In addition, preparing the conference materials would cost the hotel £6 per attendee. The university has estimated that the conference will be attended by between 80 and 120 people.

Required

- What is the total average cost per attendee if the conference has an attendance of 80 people?
- What is the total average cost per attendee if the conference has an attendance of 120 people?
- Explain why the cost per attendee is affected by the number of people that attend the conference.
- If 120 people attend the conference and the hotel wants to earn a profit of 20 per cent on revenue, what price per person should be charged?
- There are several other local hotels that provide conference facilities. The university, which holds several conferences per year, has always used a venue provided by MerryWeather's main competitor. MerryWeather's conference manager is exceedingly keen to develop a working relationship with the university and has received permission from the General Manager to provide a very aggressively priced quote to the university. To help in his deliberations on this matter, the conference manager has approached MerryWeather's accounting department and asked them to determine what is the lowest price that can be charged per attendee without the conference adversely affecting this year's hotel profit. If you were an accountant at MerryWeather, what advice would you give to the conference manager.

Problem 7.3

Darwin's HighFlyer Hotel has spare laundry capacity and is considering offering a laundry service to the Luigi Brothers, who own three Italian restaurants. To aid deliberations

concerned with what rate should be quoted when offering the service, the Laundry Manager has asked for your assistance in analysing the laundry department's fixed and variable costs.

From her departmental records, the Laundry Manager has extracted the following schedule of cost information.

Month	Laundry costs \$	Kilograms of laundry processed
July	22,000	20,000
August	21,600	19,500
September	21,800	19,750
October	20,800	18,500
November	20,720	18,400
December	20,400	18,000

Required:

- Use the high-low method to determine the laundry department's fixed and variable cost structures.
- Provide an estimate of the total cost if 25,000 kilograms of laundry were processed in a month.

Problem 7.4

Using examples, explain the difference between fixed and variable costs.

Problem 7.5

Explain why it is important for a manager to appreciate the distinction between direct and indirect (overhead) costs.

Problem 7.6

Hawaii's SurfingViews Hotel has three selling departments: rooms, restaurants and bars. Some of SurfingViews' indirect operating expenses are allocated to the three departments in the following manner.

Indirect expense	Allocation basis	Total expense to be allocated
Rent	Floor space	\$90,000
Advertising	Sales	\$20,000
Depreciation	Net book value of assets	\$45,000
Personnel department	Salaries and wages	\$100,000

The hotel's accountant has collected the following information in connection with the hotel's indirect cost allocation exercise.

Cost management issues

	Rooms	Restaurants	Bars
Floor space in square metres	350	100	50
Sales	\$1,150,000	\$250,000	\$100,000
Net book value of fixed assets	\$900,000	\$200,000	\$100,000
Salaries and wages	\$250,000	\$210,000	\$40,000

Required:

Calculate the amount of indirect expense to be allocated to each department.

Problem 7.7

The Santa Fe is a Californian hotel with three revenue-generating departments. One of these is a foyer shop that has recorded a loss in each of the last three years. In the most recent year, the shop's profit performance schedule was as follows.

Sales	\$300,000
Cost of goods sold	<u>185,000</u>
Gross profit	115,000
Other expenses	<u>126,000</u>
Net loss	<u>\$ (11,000)</u>

Included in other expenses is an allocated hotel electricity expense of \$7,500. This overhead is allocated to the shop according to a complicated formula that recognises floor space as well as the hours that the shop is open. Of the \$7,500 allocated, it is estimated that if the shop were to close, \$3,000 in electricity would be saved. The other expenses also include \$12,000 of allocated overheads pertaining to rent of the building and also maintenance of the hotel's physical infrastructure. All of the remaining "other expenses" are directly traceable to the shop and would be eliminated if the shop were to close.

Required:

Prepare a financial analysis that demonstrates whether the shop should be closed.

Problem 7.8

The HeavensAbove Hotel in Auckland has three revenue-generating departments: rooms, restaurant/bar and disco. The following schedule provides the most recent profit performance statement for the hotel.

HeavensAbove Unallocated Income Statement for June 20X1

	Rooms	Restaurant / bar	Disco	Total
Revenue	\$ 375,000	\$ 100,000	\$ 25,000	\$ 500,000
Cost of sales		22,000	8,000	30,000
Labour	80,000	31,000	4,200	115,200
Other direct costs	<u>35,000</u>	<u>6,000</u>	<u>4,000</u>	<u>45,000</u>
Departmental profit	<u>260,000</u>	<u>41,000</u>	<u>8,800</u>	<u>309,800</u>
Indirect costs:				
Marketing				34,000
Facility maintenance				21,000

	Total
General administration	40,000
Depreciation	32,000
Insurance	<u>6,000</u>
Total indirect costs	<u>133,000</u>
Profit before tax	176,800
Tax	<u>40,000</u>
Net income (profit)	<u>\$ 136,800</u>

The hotel's new accountant believes that significant further performance insights could be gained if the indirect expenses were allocated to the hotel's three revenue departments. He has determined that marketing expenses should be allocated based on the relative level of sales made by each department. Facility maintenance is to be allocated based on floor space, general administration is to be allocated according to the number of employees in each department, and depreciation and insurance is to be allocated according to the book value of depreciable assets held in each department. The accountant has compiled the following information to aid in the allocation of indirect expenses.

	Rooms	Restaurant / bar	Disco
Square metres of floor space	800	120	80
Number of employees	25	20	5
Book value of assets	\$8.5m	\$1m	\$0.5m

Required:

- Prepare an income statement that allocates the indirect costs to the three sales-generating departments and shows each departments' profitability subsequent to this allocation exercise.
- Imagine that following the allocation of indirect expenses to the revenue-generating departments, it has been found that one of the departments is recording a loss. Explain whether from this analysis one can conclude that the loss-making department should be closed down.

Problem 7.9

The General Manager of Nova Scotia's Trenton Hotel is concerned that in January and February her hotel is running at a loss. She has decided to hold a senior management meeting to consider whether the hotel should be closed during these two months. Prior to the meeting she has asked the chief accountant to prepare an analysis of profit that compares the hotel's performance in January and February with the performance in the remainder of the year. The accountant has produced the following schedule.

Trenton Hotel – Profit Performance			
	January–February	March–December	Total
Revenue	\$8,000	\$150,000	\$158,000
Cost of sales	<u>2,000</u>	<u>37,500</u>	<u>39,500</u>
Gross profit	<u>\$6,000</u>	<u>\$112,500</u>	<u>\$118,500</u>

Cost management issues

Other expenses

Salaries & Wages	6,800	45,000	51,800
Electricity	340	6,000	6,340
Advertising	800	4,000	4,800
Maintenance	300	1,600	1,900
Depreciation	7,000	35,000	42,000
Insurance	<u>200</u>	<u>1,000</u>	<u>1,200</u>
Total expenses	<u>15,440</u>	<u>92,600</u>	<u>108,040</u>
Net income (profit (loss))	<u>(\$9,440)</u>	<u>\$19,900</u>	<u>\$10,460</u>

In addition, the accountant has produced the following information pertaining to the proposed two month closure.

Salaries and Wages:	\$3,000 of this cost is fixed per month as it relates to long-term salaried staff.
Electricity:	Even if closed, \$50 of electricity would be used per month.
Advertising:	The hotel has been conducting advertising that costs \$400 per month. The cost of two months advertising would be saved if closed for January and February.
Maintenance:	It is estimated that \$200 of maintenance would be saved if the hotel closed for two months.
Depreciation:	The accountant applies depreciation on a time basis, i.e., 20 per cent per annum depreciation is being charged on the hotel's assets that have a gross book value of \$210,000.
Insurance:	If closed, the hotel would save \$40 per month in insurance.

Required:

Prepare an analysis that shows the financial implication of closing the hotel for January and February.

Problem 7.10

The GangesDelta, a large 4,000-room Las Vegas hotel, has a centralised kitchen that produces much of the food sold in the hotel's seven restaurants. Within the kitchen is a bakery area that produces a range of breads, cakes and other baked goods. The kitchen has developed a reputation both within the hotel and in the Las Vegas community for its walnut and date muffins. The kitchen currently produces 5,000 trays of muffins per year, with most of the muffins sold to small Las Vegas food outlets. The hotel's cost of producing a tray of muffins when the bakery's output is 5,000 trays per year has been estimated to be:

Ingredients	\$ 9
Direct labour	20
Variable kitchen overhead	5
Fixed kitchen overhead	<u>12</u>
Total cost per tray	<u>46</u>

One-third of the fixed kitchen overhead is allocated from costs that are common to the hotel's whole centralised kitchen (e.g., rent, kitchen cleaning and maintenance, etc.). The remainder

relates directly to the bakery area and 75 per cent of this would be saved if the muffin production were to cease.

Magic Muffins, a specialist producer of muffins, has offered to provide muffins to the GangesDelta for \$42 per tray. Magic Muffins has a good reputation for quality and on-time delivery, and the GangesDelta General Manager is satisfied that the hotel's reputation and sales of muffins would be unaffected if it were to purchase from Magic Muffins.

Required:

- Assuming there would be no other way to use the kitchen area currently utilised in the preparation of muffins, prepare an analysis that shows whether the GangesDelta should purchase from Magic Muffins and cease its own production of muffins.
- If the GangesDelta kitchen space currently used in the production of muffins could be used to produce breads that would contribute \$50,000 per year towards the hotel's profit, demonstrate whether the Magic Muffins offer be accepted?

Problem 7.11

The WaltWonderful hotel in Orlando has conference facilities that can cater for 650 delegates. Based on 54,000 delegate days sold last year, the cost to host a delegate for one day at the hotel has been estimated to be as follows:

Variable costs per delegate day		
Food	\$ 15	
Drink	12	
Casual staff wages	<u>6</u>	
		\$ 33
Fixed costs per delegate day		
Hotel allocation of overheads	4	
Permanent staff salaries	<u>6</u>	
		<u>10</u>
		<u>\$ 43</u>

This year the hotel is experiencing low conference sales during a worldwide economic downturn. The hotel's General Manager has told his conference sales team that they are going to have to be willing to drop normal conference prices during this downturn.

The conference sales manager has been approached by a local university to host a one-day conference in three months' time. At this time no other conference has been booked and the likelihood of any booking being made for this period is remote. The university has offered to pay \$26 for each delegate attending plus \$3,000 for venue hire. It is projected 400 delegates will attend the conference.

Required:

- Assuming all the delegates will be local and no delegates will stay at the hotel, prepare an analysis to determine whether a positive financial result will arise from agreeing to host the conference on the terms that the university is seeking.
- Now imagine a second conference organiser approached the hotel to hold a three-day magicians' conference in the week after the proposed university conference. No conference

Cost management issues

is booked for this week. It is estimated that 200 magicians will attend the conference and stay in the hotel for three nights. Each magician's accommodation booking would contribute \$30 towards hotel profit. The conference organiser is negotiating hard to pay a conference delegate package of \$12 per delegate day with no venue hire fee. Demonstrate whether the magicians' conference organiser's offer is justifiable on financial grounds.

Problem 7.12

The manager of housekeeping at Osaka's SakuraStay hotel is attempting to exert tighter control over housekeeping costs. He has asked you to assist in determining how the total of housekeeping costs relate to the number of rooms sold. The following information has been collected:

	Housekeeping costs	Room nights sold
Month	¥	
January	410,000	3,600
February	370,000	3,000
March	332,000	2,800
April	310,000	2,600
May	375,000	3,000
June	400,000	3,200

Required:

- Use the high-low method to estimate the cost function by relating room nights sold to housekeeping costs.
- Based on your answer computed in a), estimate housekeeping costs in a month when 4,000 room nights are sold.
- Having presented the housekeeping manager with your high-low method analysis, he questions the accuracy of the method. He tells you that according to the method, housekeeping costs should have been the same in February and May as the same number of room nights were sold in these two months. Yet total housekeeping costs were different in these two months by ¥5,000. The analysis in a) is based on the assumption that the primary cost driver of housekeeping costs is room nights sold. Identify another, potentially better, cost driver for housekeeping costs.
- Further to your answer to c), identify two reasons why the high-low method is unlikely to ever provide a perfect basis for estimating the housekeeping cost function.

Chapter 8

Cost-volume-profit analysis

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. what is meant by “contribution margin” and “contribution margin ratio”,
2. the benefits that derive from using the contribution margin format when preparing an income statement,
3. how breakeven can be determined,
4. how the level of sales required to achieve a before or after tax target profit can be determined.

1) Introduction

When considering a decision to enter a new commercial activity (e.g., open a restaurant), questions frequently posed by managers include: “How many units will we need to sell in order to breakeven?”, and “How much will we need to sell in order to achieve our target profit level?”. Other questions that sometimes arise in connection with existing activities include: “What will happen to profit if we manage to increase sales volume by 10 per cent?”, and “If we increase advertising by 15 per cent, how much more would we have to sell in order to maintain our current level of profit?”. This chapter outlines an analytical approach that will enable you to answer these types of questions. This approach is generally referred to as “cost-volume-profit” (CVP) analysis.

2) Contribution margin

The primary focus in CVP analysis concerns projecting future levels of profitability. Projecting profit requires an understanding of how much costs and profits will fluctuate following a change in sales volume. The conventional income statement, such as that presented as [Exhibit 8.1](#), is unfortunately not well designed to support such an analysis.

Exhibit 8.1

The DapperDrake Resort Income statement for the year ending 30 June 20X1 (Conventional format)

	\$	Percentage
Sales revenue	2,000,000	100
Less: Cost of sales	<u>300,000</u>	<u>15</u>
Gross profit	1,700,000	85
Operating expenses		
Administration	400,000	20
Marketing	380,000	19
Human resources	120,000	6
Engineering	260,000	13
Financial expenses	220,000	11
Other	<u>100,000</u>	<u>5</u>
	<u>1,480,000</u>	<u>74</u>
Net profit	<u>\$ 220,000</u>	<u>11</u>

Exhibit 8.2

The DapperDrake Resort Income statement for the year ending 30th June 20X1 (Contribution margin layout)

	\$	Percentage
Sales revenue	2,000,000	100.0
Variable costs		
Variable cost of sales	300,000	15.0
Variable operating expenses	<u>200,000</u>	<u>10.0</u>
	\$	Percentage
Contribution margin	1,500,000	75.0
Fixed costs		
Administration	380,000	19.0
Marketing	350,000	17.5
Human resources	70,000	3.5
Engineering	210,000	10.5
Financial expenses	220,000	11.0
Other	<u>50,000</u>	<u>2.5</u>
	<u>1,280,000</u>	<u>64.0</u>
Net profit	<u>\$ 220,000</u>	<u>11.0</u>

When an income statement is presented in this conventional format, costs are classified according to business function (e.g., administration, marketing, etc.). An alternative to this approach involves classifying costs according to whether they are variable or fixed. Total revenue minus total variable costs is generally referred to as “contribution margin”. Accordingly, an income statement that distinguishes between variable and fixed costs is generally described as presented in a contribution margin format. DapperDrake’s income statement for the period ending 30th June 20X1 is restated using the contribution margin format in [Exhibit 8.2](#). Note that the only difference between the two statements is the cost classifications used. The revenue and the net profit figures are the same in the two statements.

The advantage of the contribution margin format is that it highlights what proportion of revenue is consumed by variable costs. In the case of DapperDrake, this is 25 per cent (i.e., variable cost of sales comprise 15 per cent of revenue, and variable operating expenses comprise 10 per cent of revenue). It is important to recognise that because variable costs move in line with revenue, this relationship is constant. By implication, as 25 per cent of DapperDrake’s sales revenue is consumed by variable costs, 75 per cent of its sales revenue remains as a contribution towards covering fixed costs. Once revenue achieves a level that is sufficient to cover all fixed costs, additional sales will contribute to the earning of profit. As the contribution is 75 per cent of revenue, once fixed costs are covered, profit will accumulate at the rate of 75 per cent of every additional dollar of sales. Note the use of the words “contribution” and “contribute” in the previous two sentences. This highlights why the term “contribution margin” is used when referring to sales revenue minus variable costs. “Contribution margin ratio” refers to the percentage of sales that is not consumed by variable costs. It is found as follows:

$$\text{Contribution margin ratio} = \text{Contribution margin} \div \text{Revenue} \times 100.$$

DapperDrake’s contribution margin ratio is:

$$\$1,500,000 \div \$2,000,000 \times 100 = 75 \text{ per cent.}$$

The contribution margin format is useful as it enables us to quickly answer questions such as “What will happen to DapperDrake’s profit if revenue increases by \$200,000?”. As DapperDrake’s contribution margin ratio is 75 per cent, we know that increased revenue of \$200,000 will add \$150,000 ($0.75 \times \$200,000$) to profit. Viewed slightly differently, as revenue and variable costs move in tandem, a 10 per cent increase in sales, i.e., \$200,000, will result in a 10 per cent increase in contribution, i.e., \$150,000. These quick observations can be made due to the way that the information is provided in [Exhibit 8.2](#), and they underline the value of using a contribution margin format when preparing income statements.

3) Breakeven analysis

Breakeven analysis can be applied in different scenarios that signify varying degrees of complexity. In light of this, the technique will be described in several stages. Initially, the basic

Cost-volume-profit analysis

situation of calculating breakeven when only one service is sold is outlined. This basic situation will then be extended by considering the sale of more than one service. Following this, the question of how many units need to be sold to achieve a target level of profit is described.

a) Calculating breakeven when one service is sold

By distinguishing between fixed and variable cost, we can determine the volume of sales necessary to achieve breakeven (i.e., that level of sales where profit is \$0). To conduct a breakeven analysis, we need to consider contribution at the unit level. In the context of hospitality management, by “unit” we usually mean rooms (if appraising room sales necessary to breakeven), or covers (if appraising what level of restaurant sales are necessary to breakeven). As contribution margin refers to total revenue minus total variable cost, it follows that contribution per unit is calculated as follows:

$$\text{Contribution per unit} = \text{Unit sales price} - \text{Unit variable cost}$$

In Financial decision making in [action case 8.1](#), the calculation of breakeven is illustrated in the context of a rooms division manager attempting to determine what level of occupancy must be achieved if his hotel’s rooms division is to avoid recording a loss.

FINANCIAL DECISION MAKING IN ACTION CASE 8.1

The Rooms Division Manager and breakeven analysis

Imagine the Rooms Division Manager of Glasgow’s BudgetStay Hotel is due to meet with the hotel’s Marketing Director to discuss next year’s promotion activities. The Rooms Division Manager is concerned by a recent drop in occupancy, and prior to meeting the Marketing Director he would like to ascertain the level of occupancy necessary to reach breakeven. The Rooms Division Manager knows that £2,190,000 of annual fixed costs are charged to his division. The hotel has 200 rooms and the average room rate charged is £67. As the variable cost associated with providing one night’s accommodation is £7, average contribution per room night sold is £60 (£67 – £7).

At the beginning of the year, the BudgetStay can be described as £2,190,000 “in the hole”, due to the £2,190,000 fixed costs that will be incurred regardless of the number of room nights sold. Following the sale of the first room night, the degree to which the hotel is “in the hole” will have declined by £60, as £60 will have been contributed to covering the £2,190,000 fixed costs. Now, how many room nights with a contribution of £60 have to be sold to cover all the hotel’s £2,190,000 annual fixed costs? As 36,500 contributions of £60 provide £2,190,000 (i.e., £2,190,000 ÷ £60), we can conclude that once the BudgetStay sells 36,500 rooms, it will have achieved breakeven. This line of logic has taken us through the following widely quoted formula for determining breakeven:

$$\text{Breakeven number of units to be sold} = \text{Fixed costs} \div \text{Contribution per unit}$$

BudgetStay's breakeven point of 36,500 rooms sold per annum can also be stated in terms of the occupancy level required to achieve breakeven. If the hotel is open for 365 days per annum, it would have 73,000 room nights available per annum (365 days \times 200 rooms). 36,500 rooms represents 50 per cent of BudgetStay's annual available room nights (36,500 \div 73,000 \times 100). We can therefore conclude that an occupancy rate of 50 per cent will result in BudgetStay achieving breakeven. The occupancy breakeven formula can be stated as:

$$\text{Number of room sales necessary for breakeven} \div \text{Room nights available} \times 100$$

If the Rooms Division Manager develops a basic grasp of breakeven, he will quickly recognise that the breakeven level of room sales would be lowered if he can achieve any of the following:

- Increase the average room rate above £67,
- Reduce the variable costs per room night sold below £7,
- Reduce the level of fixed costs below £2,190,000.

Case 8.1 illustrates that the unit sales required to breakeven can be calculated by the formula:

$$\text{Breakeven number of units to be sold} = \text{Fixed costs} \div \text{Contribution per unit}$$

You should also be aware that the revenue required to breakeven can be calculated by the formula:

$$\text{Breakeven revenue} = \text{Fixed costs} \div \text{Contribution margin ratio (stated as a decimal)}$$

As the room selling price for the BudgetStay hotel in Case 8.1 is £67 and the contribution per room sold is £60, the contribution margin ratio is 89.55 per cent (£60 \div £67), or 0.8955 (rounded). By applying the breakeven revenue formula, we can determine breakeven revenue to be £2,445,561 (£2,190,000 \div 0.8955). The reason this calculation does not exactly equate with the breakeven revenue that can be calculated by multiplying the breakeven number of room sales by the room selling price (i.e., 36,500 \times £67 = £2,445,500) is due to some mathematical rounding that can frequently occur when calculating contribution margin.

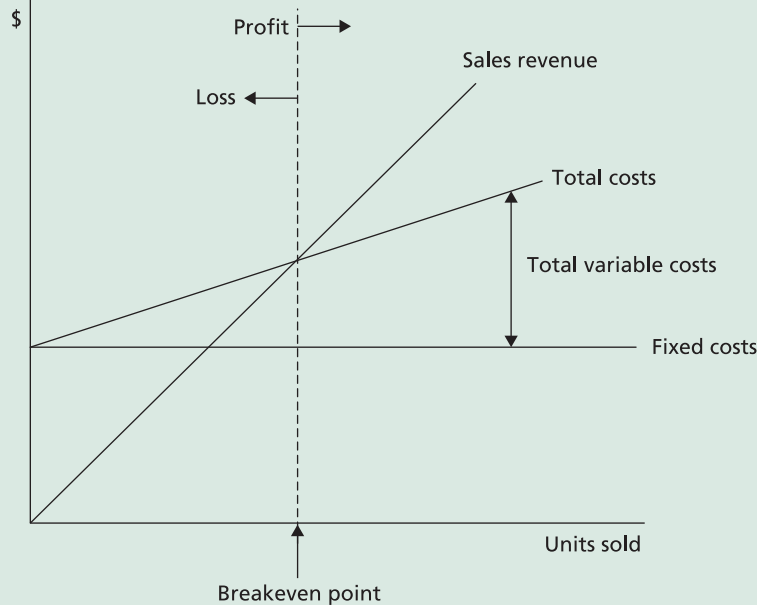
Exhibit 8.3 presents a graphical representation of breakeven. In this graph, sales activity is shown on the horizontal axis with dollars on the vertical axis. If we draw in the total sales revenue line and also the total cost line for all levels of activity, we can determine the breakeven level of sales. As breakeven occurs at that activity level where total cost equals total sales, breakeven is represented by the point where the sales and total cost lines intersect. In the graph, this breakeven point is highlighted by the vertical dotted line. Any level of sales to the right of the dotted line will result in a profit. Any level of sales to the left of the line will result

Cost-volume-profit analysis

in a loss. Some managers find that breakeven graphs represent useful visual aids when considering the profit implications of different levels of sale activity.

Exhibit 8.3

Graphing breakeven



One further extension to the basic breakeven analysis that some managers find useful concerns the safety margin concept. This concept arises when managers raise the question “By how many sales are we surpassing breakeven?”. Alternatively, a manager might ask “How much could our level of occupancy decline before we would record a loss?”. Calculation of safety margin is illustrated in [Box 8.1](#).

Box 8.1

Calculating safety margin

To illustrate how the safety margin can be calculated, let us continue with the BudgetStay breakeven scenario developed in the earlier financial decision making case. Imagine that BudgetStay has current annual sales revenue of £3,668,250. We have already determined that BudgetStay must sell 36,500 rooms to breakeven, i.e., revenue must be £2,445,500 ($36,500 \times £67$). Annual sales could therefore fall by £1,222,750 ($£3,668,250 - £2,445,500$) before the hotel would incur a loss. £1,222,750 of sales represents 18,250 room nights

(£1,222,750 ÷ £67). As a result, we can also state that annual room nights sold could fall by 18,250, or 25 per cent of occupancy (18,250 ÷ 73,000 × 100), before the hotel enters loss-making levels of sales activity.

Following this rationale, it can be seen that margin of safety can be stated in any of the following ways:

Margin of safety in £ sales = Current £ sales – £ sales required to breakeven

Margin of safety in unit sales = Current unit sales – unit sales required to breakeven

Per cent occupancy safety margin = Current occupancy per cent – occupancy per cent required to breakeven.

b) Calculating breakeven when more than one service is sold

Finding breakeven when more than one service is sold will be considered initially in a scenario of a hotel selling two types of room with different contribution margins. Following this, the case of different contribution levels arising from two different room types and also restaurant sales is explored.

In [Box 8.2](#) an approach to calculating breakeven when selling two services is outlined.

Box 8.2

Calculating breakeven: the case of two room types with different contribution margins

Assume that BudgetStay's sister hotel, the BudgetRest, is in Toronto and has 110 single and 90 double rooms. Past experience indicates that sales occur in the ratio of four single room sales for every three double room sales. BudgetRest's single rooms sell for an average of \$67 per night and a \$7 variable cost is incurred cleaning the rooms. The double rooms have an average rate of \$86 and cost \$9 to clean. BudgetRest has annual fixed costs of \$2,072,400.

As with the BudgetStay example, we commence the calculation of breakeven by determining the contribution earned from a room sale:

BudgetRest's contribution earned per single room night sold
= \$67 – \$7 = \$60.

BudgetRest's contribution earned per double room night sold
= \$86 – \$9 = \$77.

One way of dealing with the fact that BudgetRest sells two types of room that earn differing contribution levels involves viewing the hotel as selling packages. In light of the mix of rooms sold in the past, we will view each package as comprising four single room sales and three double room sales. We now determine the contribution earned from selling one package:

$$\begin{aligned} \text{Contribution from sale of 1 package} &= \\ \text{Contribution from 4 single rooms} + \text{Contribution from 3 double rooms} \\ &= (4 \times \$60) + (3 \times \$77) = \$240 + \$231 = \$471. \end{aligned}$$

Now, using the basic breakeven formula, we can determine how many packages need to be sold to breakeven:

$$\begin{aligned} \text{Breakeven in packages} &= \text{Fixed costs} \div \text{Contribution per package}, \\ \therefore \text{BudgetRest's breakeven in packages} &= \$2,072,400 \div \$471 = 4,400. \end{aligned}$$

As BudgetRest has to sell 4,400 packages to breakeven, and each package comprises 4 single rooms and 3 double rooms, we can conclude that the hotel must sell 17,600 single room nights per annum ($4,400 \times 4$) and 13,200 double room nights per annum ($4,400 \times 3$) in order to breakeven. The accuracy of this breakeven solution can be verified by checking whether this level of sales results in a zero level of profit.

Check to see if the breakeven solution is correct:

Contribution from single room sales:	$17,600 \times (\$67 - \$7)$	\$1,056,000
Contribution from double room sales:	$13,200 \times (\$86 - \$9)$	<u>\$1,016,400</u>
Total contribution		\$2,072,400
Less Fixed costs		<u>\$2,072,400</u>
Profit		<u>\$ 0</u>

As profit is \$0 when 17,600 singles and 13,200 doubles are sold, this represents breakeven.

The case of two room types as well as restaurant sales

Some readers will find the computation in [Box 8.2](#) somewhat challenging. Unfortunately, in this sub-section the breakeven analysis becomes still more complicated, as we introduce a further dimension. For some this might represent one straw too many, and enough to break the camel's back. The task becomes easier, however, if you remember to view sales as

comprising packages that consist of more than one type of room and, in this case, restaurant meals as well.

We will illustrate an approach that can be taken to determine breakeven when contribution is earned from two types of room as well as restaurant sales by extending the BudgetRest scenario developed in [Box 8.2](#). Assume that BudgetRest's management is considering converting an under-utilised lounge area into a facility that will provide buffet breakfasts. It has been estimated that breakfasts will have an average selling price of \$8 and an average variable cost of \$3. It has also been estimated that the provision of breakfasts will increase the hotel's annual fixed costs by \$416,170 to \$2,488,570. The existing ratio of single to double room sales is expected to continue. All double room sales result in two guests and it is estimated that 20 per cent of these guests will purchase a breakfast. Single room sales are only made to individuals and it is estimated that 50 per cent of single room guests will eat breakfast at the new facility.

The total contribution earned for each single room night sold now has to include 50 per cent of the \$5 contribution earned per breakfast sold, as 50 per cent of single guests will eat their breakfast at the restaurant. Accordingly, total contribution per single room can be calculated as follows:

$$(\$67 - \$7) + (0.5 \times \$5) = \$60 + \$2.5 = \$62.5$$

The total contribution earned for each double room night sold now has to include 20 per cent of the contribution earned from two breakfasts as 20 per cent of double room night sales will result in two breakfasts sold. Accordingly, total contribution per double room can be calculated as follows:

$$(\$86 - \$9) + (0.2 \times 2 \times \$5) = \$77 + \$2 = \$79$$

As rooms are sold in the ratio of 4 singles for every 3 doubles, we will again refer to units as packages. As before, each package is viewed as comprising 4 single room nights and 3 double room nights.

$$\begin{aligned} \text{Contribution earned from sale of a package} &= \\ (4 \times \$62.5) + (3 \times \$79) &= \$250 + \$237 = \$487 \end{aligned}$$

$$\begin{aligned} \text{Number of packages to be sold to breakeven} &= \\ \text{Fixed costs} \div \text{contribution per package} &= \\ \$2,488,570 \div \$487 &= 5,110. \end{aligned}$$

As each package comprises 4 single rooms and 3 double rooms, 5,110 packages comprise 20,440 single rooms ($5,110 \times 4$) and 15,330 double rooms ($5,110 \times 3$).

\therefore Need to sell 20,440 single rooms and 15,330 doubles in order to breakeven.

Check to see if solution is correct:

Cost-volume-profit analysis

		\$
Contribution from single room sales	$20,440 \times (\$67 - \$7)$	1,226,400
Contribution from double room sales	$15,330 \times (\$86 - \$9)$	1,180,410
Contribution from breakfasts sold to single room guests	$20,440 \times 0.5 \times \5	51,100
Contribution from breakfasts sold to double room guests	$15,330 \times 2 \times 0.2 \times \5	<u>30,660</u>
Total Contribution		2,488,570
Less Fixed costs		<u>2,488,570</u>
Profit		<u>\$ 0</u>

As profit is \$0 when 20,440 single and 15,330 double rooms are sold, this level of sales represents breakeven for the hotel.

c) Calculating the level of sales necessary to achieve a target level of profit

Some managers are interested in determining the level of sales necessary to achieve a profit target. A profit target can be stated in terms of a before tax, or after tax, amount. The worked example in [Box 8.3](#) demonstrates how the level of sales necessary to achieve a profit target stated in both before and after tax terms can be determined.

Box 8.3

Determining the sales necessary to achieve a targeted profit

To illustrate how to calculate the sales level necessary to achieve a targeted before tax profit, let us return to the basic breakeven scenario outlined in the financial decision making in [action case 8.1](#). Recall that the BudgetStay Hotel had annual fixed costs of £2,190,000, and offered one type of room. The average room rate was £67 and a variable cost of £7 was incurred for each room night sold. Now imagine that BudgetStay's management wants to determine how many room sales are necessary to achieve an annual profit of £328,500.

If you were able to grasp the rationale for the approach taken in the basic breakeven situation, understanding how we determine the level of sales necessary to achieve a target profit will be relatively straightforward. In the breakeven formula, we found that 36,500 £60 room night contributions were necessary to cover the fixed cost of £2,190,000. Now we are concerned with not only covering £2,190,000 of fixed costs, we must also generate enough sales to provide £328,500 profit. We could determine that beyond the breakeven point, a further 5,475 room nights would have to be sold (i.e., $\text{£}328,500 \div \text{£}60$). Alternatively, we can find the sales required to achieve the profit

target by simply adding £328,500 to the fixed costs in the breakeven formula. Accordingly, the target profit formula can be stated as:

$$\text{(Fixed cost + Target profit)} \div \text{Contribution per unit.}$$

Applying this formula to the BudgetStay scenario we find:

$$\begin{aligned} \text{Room sales to achieve £328,500 profit} &= \\ (\text{£2,190,000} + \text{£328,500}) \div \text{£60} &= 41,975. \end{aligned}$$

Now imagine that BudgetStay revised its £328,500 before tax profit target to a £328,500 after tax profit target, and that the hotel is subject to 40 per cent tax. Note that until now we have been dealing exclusively with before tax amounts. The easiest way to deal with an after tax amount is to convert it to its before tax equivalent. If a 40 per cent tax applies, £100 before tax is equivalent to £60 after tax, i.e., $\text{£100} (1 - 0.4)$. As we multiply by “1 – tax rate” to convert a before tax amount to its after tax equivalent, we divide by “1 – tax rate” when reversing the conversion. Accordingly, £60 after tax is equivalent to £100 before tax, i.e., $\text{£60} \div (1 - 0.4)$. We can incorporate this line of logic to the target profit formula to develop the following formula for finding the level of sales necessary to achieve a targeted after tax profit:

$$\frac{\text{Fixed costs} + (\text{After tax target profit} \div \text{“1 – tax rate”})}{\text{Contribution per unit}}$$

Applying this formula to the BudgetStay example, we find that room sales necessary to generate an after tax profit of £328,500 =

$$\begin{aligned} &\frac{\text{£2,190,000} + [\text{£328,500} \div (1 - 0.4)]}{\text{£60}} = \\ &(\text{£2,190,000} + \text{£547,500}) \div \text{£60} = 45,625 \text{ rooms} \end{aligned}$$

4) The assumptions of cost-volume-profit analysis

It should be noted that several assumptions are made when applying CVP. The main assumptions are:

- Selling price is constant. In reality we may need to drop the price in order to sell more.
- Fixed costs are constant. This assumption is reasonable if the analysis is restricted to a range of sales activity levels that could be supported by the current level of fixed costs. This signifies that CVP analysis should be used in the context of the short-term, i.e., the period of time in which fixed costs will not alter.
- Total variable cost varies directly in proportion with sales volume. This relationship will breakdown if higher levels of sales activity results in the hotel securing volume discounts on purchases, or any economies of scale.

5) Summary

In this chapter we have reviewed how distinguishing between fixed and variable costs enables contribution margin to be determined. Contribution margin represents the key to appraising profit implications of changed levels of activity. In addition, we have seen how breakeven analysis can be conducted. It is relatively straightforward to calculate breakeven when only one service or product is sold. When more than one service or product is sold, however, the analysis becomes more challenging. We have also seen how to determine the volume of sales necessary to achieve a before or after tax target profit level.

Having read the chapter you should now know:

- how to compute contribution margin and also the contribution margin ratio associated with the sale of a particular product or service,
- how to present an income statement using the contribution margin layout,
- how to compute breakeven when one or more products and services are sold,
- how to determine the level of sales necessary to achieve a before or after tax profit target.

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Problems

Problem 8.1

Describe the benefits that derive from preparing an income statement using the contribution margin format.

Problem 8.2

In what ways might a manager use cost-volume-profit analysis?

Problem 8.3

Paul Hulse, the owner of the Hulsey Restaurant in West Auckland recently attended a management training seminar in which he was shown the benefits of using the contribution format to prepare income statements. He now wants to see his restaurant's income statement prepared

using the contribution margin format. In the year ending 31st December 20X1, the restaurant sold 20,000 covers with an average cover price of \$25. Variable food and drink costs average \$5 per cover and the head chef's salary includes a performance-related component giving him a commission of \$0.8 per cover sold. All of the hotel's remaining costs can be viewed as fixed. The restaurant's income statement presented in conventional format for the year ended 31st December 20X1 is as follows:

The Hulsey Restaurant Income statement for the year ending 31st December 20X1	
	\$
Sales revenue	500,000
Less: Cost of sales	<u>100,000</u>
Gross Profit	400,000
Operating expenses	
Salaries and wages	160,000
Marketing	10,000
Rent	48,000
Maintenance	5,000
Other	<u>10,000</u>
Total operating expenses	<u>233,000</u>
Net profit	<u>\$ 167,000</u>

Required:

- Using the contribution margin format, prepare the Hulsey Restaurant's income statement for the year ending 31st December 20X1.
- What is the restaurant's current breakeven point?
- If the volume of sales were to increase by 10 per cent, by how much would the restaurant's profit increase?
- If revenue next year reached \$600,000, what would the restaurant's profit be?
- If the restaurant were to increase average menu prices by 10 per cent but was able to maintain the current volume of covers sold, what would be the impact on profit?

Problem 8.4

Determine the missing values in the following table. Each row represents a separate scenario.

Room rate	Variable cleaning costs per room night	Rooms nights sold	Contribution	Fixed costs	Profit (loss)
\$150	a	10,000	b	\$600,000	\$600,000
c	\$20	3,150	\$126,000	\$80,000	d
\$65	\$15	e	\$400,000	f	\$ 0
\$60	g	700	\$24,500	h	– \$2,000

Problem 8.5

A 60-room hotel near Land's End in Cornwall incurs annual fixed costs of £360,000. The hotel is open for 365 nights in the year and charges an average room rate of £68. The variable costs associated with room occupancy are £8 per room night.

Required:

- At what room occupancy level would the hotel breakeven?
- At what level of sales would the hotel make a before tax profit of £60,000?
- If the hotel pays 40 per cent tax, how many rooms must be sold in order to make an after tax profit of £72,000?

Problem 8.6

Tim Stokes recently invested \$325,000 to acquire the RockOyster, a restaurant on Vancouver Island. RockOyster meals sell for an average of \$30 and the average variable cost per meal is \$8. Tim believes that by reducing newspaper advertising, he can reduce fixed costs by 10 per cent from their current level of \$12,000 per annum. Other fixed costs amount to \$100,000 per annum.

- What will be the restaurant's breakeven level of sales in units and dollars subsequent to the reduced advertising?
- Assuming the reduced level of advertising, determine how many meals must be sold if Tim wants to earn a 20 per cent after tax annual rate of return on his investment. Assume the restaurant's profits are subject to a 35 per cent tax rate.

Problem 8.7

Vermont's PineCrest hotel has a restaurant and 90 double rooms and 60 single rooms. The average room rate for double rooms is \$88 and the variable cost per double room night sold is \$8. Single room nights sell for \$56 and the variable cost per single room night sold is \$6. The average occupancy for both types of room is 70 per cent. The hotel has annual fixed costs of \$1,998,000.

Past records indicate the following:

- 90 per cent of guests staying in single rooms purchase breakfast in the hotel's restaurant, and 50 per cent of single guests buy their dinner in the restaurant.
- 70 per cent of guests staying in double rooms purchase breakfast in the hotel's restaurant, and 30 per cent of double room guests buy their dinner in the restaurant.
- The average contribution per breakfast cover sold is \$8 and the average contribution per dinner sold is \$20. The restaurant only serves hotel guests.
- For every 3 double rooms sold, 2 single rooms are sold.
- A double room sale signifies two guests and a single room sale signifies one guest.

Required:

- What is the volume of double room and single room sales that must be achieved in order for the hotel to breakeven (assume the 3 double rooms to 2 single rooms ratio is maintained)?
- What is the hotel's current level of profit? Assume the hotel is open for 365 days per year.

Problem 8.8

Mercury Hotel, a large hotel complex that operates a divisionalised management structure, is located in South East Queensland, Australia. The director of accommodation has been called into the marketing director's office. The marketing director tells the director of accommodation that he has just been approached by a Japanese tour operator who is looking to book accommodation in a South East Queensland hotel for 800 guests. All guests would stay in double rooms for one of four consecutive weeks (200 guests per week booked into 100 rooms). The four-week period falls within the hotel's quiet season. Consistent with its competitors, the hotel has never sold more than 40 per cent of its 300 double rooms at this time of the year.

Mercury's accounting department has estimated that the full cost per double room sold per week is \$300 and that the variable cost is \$180. A recent analysis of past behaviour of Japanese guests indicates that in the course of a one week stay, each guest will purchase, on average, 2 dinners and 3 breakfasts at one of the hotel's restaurants. Average contribution per dinner cover is \$25. Average contribution per breakfast served is \$7.

The marketing director has informed the director of accommodation that the Japanese tour operator knows the Queensland hotel market well and the fact that it is the quiet season. He also believes that the tour operator will be seeking quotes from other hotels to secure a low price.

Required:

- As the director of accommodation concerned with maximising reported profit for your department, what is the lowest conceivable weekly rate you would be willing to quote for a double room in the off season?
- The marketing director has been charged with the responsibility of maximising profit of the entire hotel. What is the lowest price the marketing director should be willing to accept, for a double room booked during an off-season week by a "typical Japanese guest"?
- How could the accounting system be modified in order to motivate the director of accommodation to act in a manner consistent with the maximisation of total hotel profit and not just his own department's profit?

Problem 8.9

Saturn Ltd., a large American hotel organisation, has purchased a small rooming house on a property adjacent to one of its main hotels. The acquisition was made with a view to demolishing much of the existing structure and building a custom-designed health club that could be used by hotel guests. Building of the new health club is not due to start for at least a year.

Saturn has been approached by Reg Norman, a contact of the property's vendor. Norman specialises in arranging golfing holidays. In keeping with the last five years, Norman wants to use the building for 30 weeks to house a particular niche market of "economy golfers". Norman says that he can provide between six and 15 guests per week. Under the proposed arrangement, Norman will pay Saturn \$200 for each guest provided with lodging and morning and evening meals for a week.

Saturn's accountant has developed the following cost data which he believes relevant to the decision of whether to accept Norman's offer.

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Weekly cost incurred by Saturn per guest:

Food	\$70
Electricity	\$6
Laundry, cleaning etc.	\$10

Casual staff to provide cleaning and other services for 30 weeks:

For 6 to 10 guests per week:	\$22,000
For 11 to 15 guests per week:	\$34,000

Other incremental costs if building occupied for 30 weeks:

Maintenance and security:	\$12,000
---------------------------	----------

Required:

- From Saturn's perspective what is the breakeven number of guests per week.
- Calculate the change to Saturn's total profit if 10 guest rooms are sold per week throughout the 30-week period.
- Calculate the change to Saturn's total profit if 12 guest rooms are sold per week throughout the 30-week period.

Problem 8.10

The Cairns Backpackers Lodge belongs to the Australian Backpackers Association. The Association provides an accommodation reservation service and charges accommodation owners 10 per cent of room selling price as a commission. All of Cairns Backpackers Lodge room sales are made through the Australian Backpackers Association and the lodge provides a daily room cleaning service for all occupied rooms. The following data has been projected for the Cairns Backpackers Lodge in the forthcoming year:

Next year's projected room sales	25,000
Selling price per room	\$20
Cost per room cleaned	\$4
Total fixed costs	\$112,000

Required:

- What is the Cairns Backpackers Lodge breakeven level of sales?
- What is the Cairns Backpackers Lodge projected level of profit in the forthcoming year?
- Demonstrate which of the following would reduce the lodge's projected profits the most:
 - a 10 per cent decrease in the selling price (assume commission remains at 10 per cent of sales),
 - a 10 per cent increase in the cost per room cleaned,
 - a 10 per cent increase in fixed costs,
 - a 10 per cent decline in projected sales volume,
 - a 10 per cent increase in the commission rate charged by the Backpackers Association,

Problem 8.11

The Madras MaharajaMount Hotel has 120 rooms and achieved an 80 per cent average occupancy in the year ending 31st December 20X1. The hotel's income statement together with a percentage breakdown of its costs between fixed and variable is provided below.

	Income statement year ending 31st December 20X1	Proportion of variable costs	Proportion of fixed costs
	Rs (rupees)		
Sales revenue	900,000		
Less: Cost of sales	<u>120,000</u>	100%	
Gross Profit	780,000		
Less: Operating expenses			
Salaries and wages	175,000	60%	40%
Marketing	40,000	30%	70%
Rent	300,000		100%
Other	<u>60,000</u>	25%	75%
Net profit	<u><u>205,000</u></u>		

Required:

Calculate the revenue the hotel needs to generate in order to breakeven.

Problem 8.12

Describe three shortcomings of breakeven analysis.

Chapter 9

Budgeting and responsibility accounting

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. how organisations are subdivided into responsibility centres,
2. the four main types of responsibility centre,
3. how to compute residual income as an alternative to using ROI when measuring the performance of an investment centre,
4. the importance of budgeting,
5. the organisational roles that are served by budgeting,
6. the behavioural implications of budgeting,
7. how a purchases, production and labour budget schedule can be prepared.

1) Introduction

This chapter focuses on **responsibility accounting** and **budgeting**. The underlying theme of these two topics is **organisational control**. Responsibility accounting involves sub-dividing an organisation into **units of accountability**. It is fundamental to control as it involves holding managers accountable for the performance of their respective units. Closely associated with responsibility accounting is budgeting. This is because budgeting involves allocating resources to an organisation's sub-units. In addition, the budget highlights benchmarks that are used when appraising a unit manager's performance.

Budgeting is an exceedingly important yet challenging exercise as it requires managers representing the full range of an organisation's activities to commit themselves to the **same co-ordinated plan**. Emmanuel et al. (1990) highlight the budget's importance in the following way:

Budgetary planning and control is the most visible use of accounting information in the management control process. By setting standards of performance and providing

feedback by means of variance reports, the accountant supplies much of the fundamental information required for overall planning and control.

(p. 160)

The extent to which the budget provides information that is fundamental to planning and control becomes particularly evident if you try to envisage a large organisation without a budget. If a hotel had no budget, management would have no sense of what they should be striving for in terms of sales, costs, cash flow, etc. Without a sense of what we are trying to achieve, we cannot pass judgement on the adequacy of our performance. It follows that the budget is a critically important instrument required for maintaining organisational control.

The importance of the budget is also apparent when we consider its all-encompassing nature. If a General Manager of a hotel were asked for a model of what his organisation will be doing over the next year, in responding he would most likely refer to the hotel's budget. The budget's comprehensive nature underlines how it serves as a common point of reference for managers drawn from all levels and representing all functions within the organisation.

Just as each division's income statement feeds into a comprehensive income statement for a company, so the budget comprises many schedules that feed into an overarching schedule that is widely referred to as the master budget. The master budget comprises the hotel's forecast income statement for the forthcoming period (typically a year), and also the forecast balance sheet at the end of the budgeted period. These statements do not provide sufficient detail when seeking to control the hotel's many different departments, however. We need a budgeted income statement for F&B (maybe broken down by restaurants and kitchens), a budgeted income statement for the rooms division, plus many other budget schedules to facilitate planning and control of the range of activities undertaken in a large hotel (e.g., budget schedules relating to labour cost, food preparation, training, advertising, cash flow, etc.).

The remainder of this chapter is structured as follows. The next two sections describe issues associated with responsibility accounting and the four main types of responsibility centre found in organisations. From this overview of responsibility accounting, it will become apparent that the scope of a manager's influence should determine what he or she can be held accountable for (many organisations get this fundamental principle wrong). Following this, the different roles performed by budgets and behavioural aspects of budgeting are described. In the final section, the manner in which production, purchases and labour cost budget schedules can be prepared is illustrated via a worked example.

2) Responsibility accounting

The term "responsibility centres" is used when talking of an organisation's sub-units, as each unit is concerned with a particular aspect of an organisation's affairs and the manager (or management team) overseeing a sub-unit will be held responsible for its performance. Segmenting an organisation into responsibility centres can be achieved on the basis of function, e.g., F&B, rooms, training, accounting, engineering, laundry, gardening, conference and banqueting, etc., or it can be geographically based, e.g., a senior manager in a large multi-national hotel chain may be held accountable for the performance of hotels in a designated region of a country, a whole country or a region of the world. For the purposes of this chapter, we are mainly concerned with responsibility accounting issues arising within a single hotel. For this reason, we are primarily concerned with functional segmentation.

A hotel's responsibility accounting system is inextricably linked to its organisation structure. An example of how an organisation structure is generally depicted appears as [Figure 9.1](#).

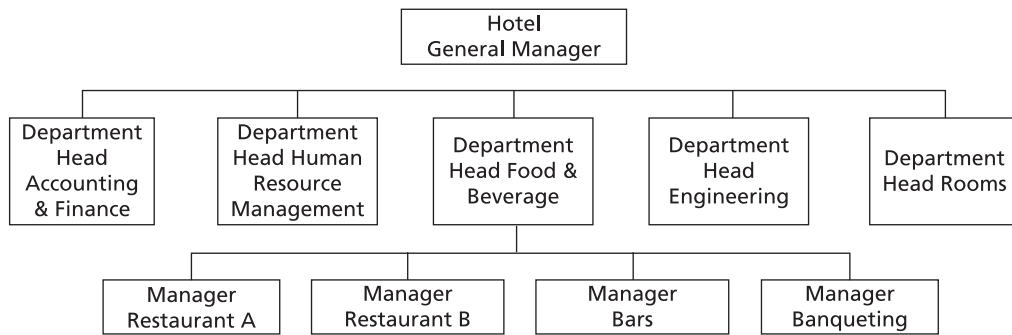


Figure 9.1 An example of a hotel's organisation chart

This extract of an organisational chart has been prepared from the perspective of the F&B department. You should note that each of the responsibility centres identified in the chart is focused on a particular activity.

Most responsibility centres consume inputs (e.g., labour and materials). Some will produce outputs that can be measured monetarily and some will have an identifiable asset base that represents invested capital. The relationship of inputs, outputs and assets to a responsibility centre is depicted in Figure 9.2. In this figure inputs and invested capital are depicted as flowing into the responsibility centre, and outputs are depicted as flowing out of the centre.

The distinction between inputs, outputs and assets is important. These three aspects of accountability provide a checklist when determining a manager's scope of influence. If we can identify which of these three areas can be affected by a responsibility centre's manager (in many cases it is more than one), we can determine what he or she should be held accountable

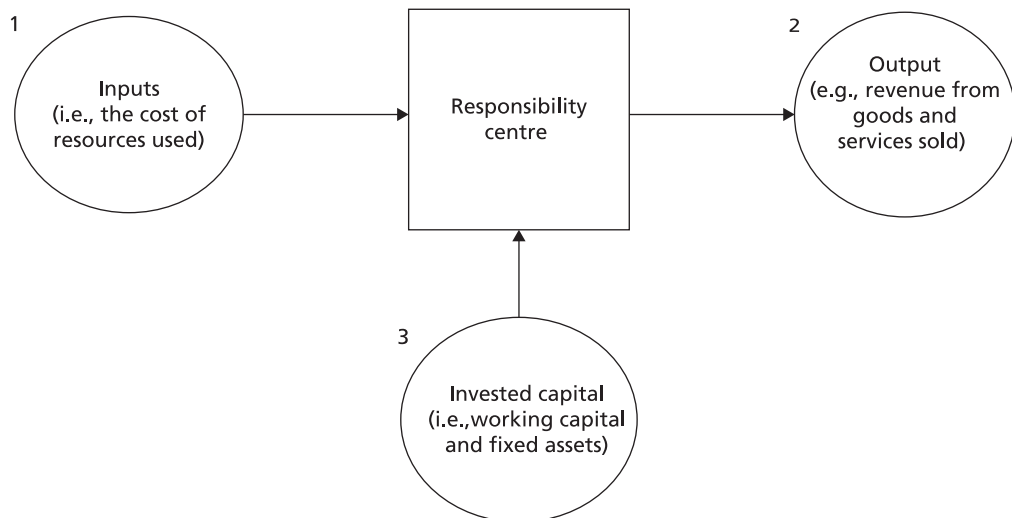


Figure 9.2 A responsibility centre and its dimensions of accountability

for. Applying this approach to determining scope of accountability results in four main types of responsibility centre:

1. Cost centres
2. Revenue centres
3. Profit centres
4. Investment centres.

A cost centre refers to a responsibility centre where the scope of the manager's influence is limited to inputs (i.e., cost as depicted by circle 1 in Figure 9.2). A revenue centre is the term used for a responsibility centre where the scope of the manager's influence is limited to outputs that can be monetarily measured (i.e., revenue as depicted by circle 2 in Figure 9.2). A profit centre is the term used to describe a responsibility centre where the manager's influence spans both costs and revenues (i.e., circles 1 and 2 in Figure 9.2). Finally, an investment centre is the term used for a responsibility centre where the manager's influence includes costs and revenues (i.e., profit) as well as the asset base employed to generate profit (i.e., all three circles in Figure 9.2).

In order to highlight their differing scope and degree of accountability, these four generic types of responsibility centre are presented hierarchically in Figure 9.3. In this figure, cost centres and revenue centres appear at the lowest level, as each is accountable for only one of the three dimensions of accountability depicted in Figure 9.2. A profit centre appears at the intermediary level as it is accountable for two of the circles in Figure 9.2. Investment centres appear at the top of Figure 9.3 as managers of investment centres are accountable for all three dimensions of accountability.

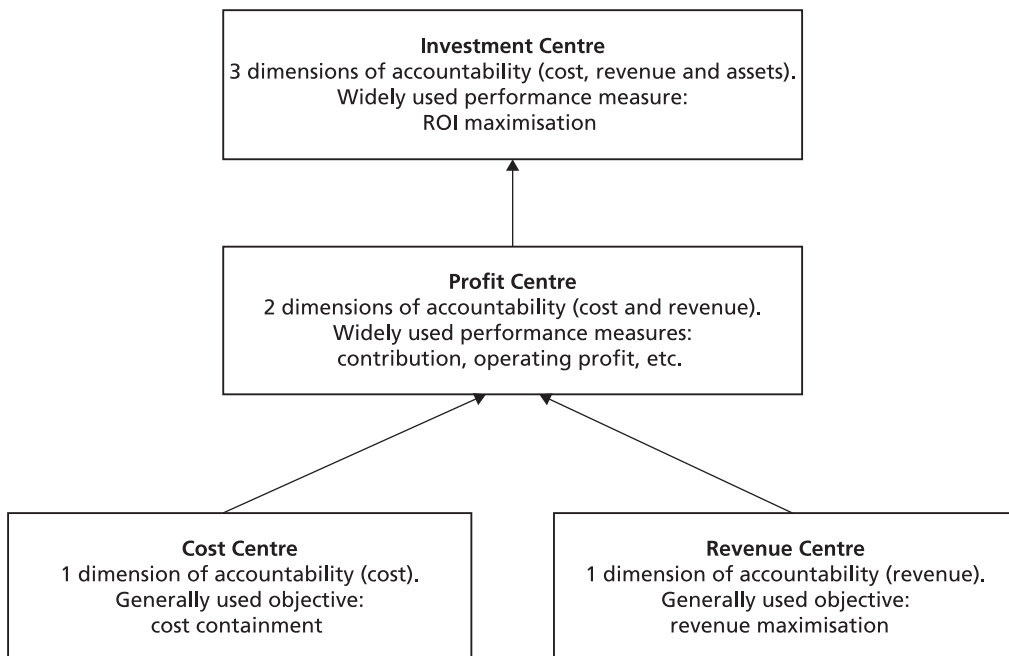


Figure 9.3 A hierarchical perspective of responsibility centres' accountability

3) Issues of cost, revenue, profit and investment centre design

This section provides an overview of issues arising in connection with the design of these four generic types of responsibility centre. When reading this section, it is important to remember that a responsibility centre's sphere of influence determines whether it is a cost, revenue, profit or investment centre. We will see that some organisational units lend themselves better to accounting control than others. For example, we will see that although accounting is well-equipped to monitor the efficiency of room servicing, it is not, however, well-equipped to monitor the performance of administrative support departments such as the personnel, training or accounting departments of a hotel.

a) Cost centres

There are two main types of cost centre: engineered cost centres and discretionary cost centres. An engineered cost centre is a centre where an output can be quantitatively measured and there is a reasonably good understanding of the input/output relationship, i.e., the level of costs that should be incurred to achieve a specified level of output is known. Examples of engineered cost centres in hotels include housekeeping (the average cost of cleaning a room can be predetermined) and laundry (the cost of processing a specified amount of laundry can be predetermined). In a discretionary cost centre, however, more subjective judgement must be exercised when budgeting. For example, as training results in no readily measurable output, setting the training budget is bound to involve a high degree of discretion. How many hours should be spent training a new staff member? Should recruiting the highest quality (expensive) trainers be given high priority? Considerable subjective judgement is bound to be invoked when answering these questions. Even if an output is relatively measurable, a poor understanding of the input/output relationship will signify high judgement exercised when determining the budgeted expenditure level. For example, in the case of a marketing department, the level of sales may well be seen as a reasonably objective measure of output, however, as appreciation of the input/output relationship between advertising expenditure and sales revenue is weak (many factors such as competitor actions affect sales), budgeting for advertising expenditure is bound to involve a relatively high degree of discretion.

In discretionary cost centres, the primary role of the budget is to restrict expenditure to a predetermined amount. This is a relatively incomplete form of control, however, as reference to the budget provides little insight as to whether resources have been expended efficiently. Accordingly, a report comparing actual expenditure to budgeted expenditure in a discretionary cost centre should be viewed differently to a report prepared for an engineered cost centre. When considering the performance of an engineered centre, efficiency (i.e., the ratio of inputs to outputs) can be monitored. In a discretionary cost centre, however, if performance measurement places too much emphasis on cost minimisation, the discretionary cost centre manager will simply reduce expenditure. Such reduced expenditure does not signify improved efficiency or performance, however. For example, cutting advertising expenditure by half may well carry long-term adverse implications for the whole organisation.

Discretionary cost centres in hotels can be classified according to two main types: administrative centres and marketing centres. Administrative centres include all administrative support centres such as human resources, legal, training and accounting. The accounting system does not represent a strong tool to objectively measure performance in such centres. A major problem when managing these centres concerns a potential for goal incongruence (i.e.,

the goal of the centre may significantly differ from the goal of the whole organisation). An example of goal incongruence is where a department is seeking to expand in order to help it reach its internal goal of providing an excellent service, despite the fact that the benefits of further expansion of the department are less than the additional costs arising from the expansion. In this type of situation we have empire building, i.e., expansion is for the benefit of the head of the department, but not for the benefit of the organisation as a whole.

With respect to marketing responsibility centres, two significant control issues arise:

1. A key performance indicator for marketing is the achievement of company sales targets. This might be an inappropriate indicator of performance, however, due to the fact that sales are affected by many factors outside the marketing manager's sphere of influence (e.g., actions taken by competitors). In addition, hotel sales are particularly affected by the health of the economy, and hotels in tourist locations are affected by factors such as international exchange rates and the changing nature of a tourist destination's image. These factors that affect sales all fall outside a marketing manager's sphere of influence.
2. Although most marketing managers would agree that marketing activities result in increased sales, many marketing budgets are set in a manner suggesting the reverse. When sales and profit increase, more money tends to be made available for marketing. This "sales-led marketing" rather than "marketing-led sales" phenomenon underlines the discretionary nature of budget setting with respect to marketing expenditure.

b) Revenue centres

Revenue centres are not widely found in the hotel industry. Revenue centres generally arise in sales departments where sales quotas are set for staff (e.g., in real estate and car retail operations). Unlike the case for inputs, it is often quite hard to measure outputs in terms of money. For example, we generally do not attempt to attach a dollar value to the outputs of departments such as accounting, training or public relations simply because these outputs do not lend themselves to financial measurement.

c) Profit centres

Profit is clearly an important performance indicator as it is widely used by investors when monitoring company performance. It is a broader measure of performance than the indicators used in revenue and cost centres as it encompasses both revenue and cost. Despite its considerable appeal, it is a less than perfect measure because:

- (a) Monetary measures do not exactly measure all aspects of input or output.
- (b) Standards used as a basis of performance evaluation can only be estimates.
- (c) Profit measures are used predominately in the context of one year or less, i.e. they tend to have a short-run achievement bias.
- (d) Rarely are all factors that determine profitability controllable by the profit centre head.

Some cost centres exert a degree of influence over revenue; however, it becomes a judgement call as to whether this is sufficient to make them a profit centre. A restaurant kitchen is a responsibility centre where this dilemma arises frequently. Kitchen staff can affect the profitability of a restaurant due to the time taken to prepare a meal, the quality of food prepared, and willingness to extend and vary the menu. In order to motivate kitchen staff to act in a way that is consistent with increasing revenue, consideration can be given to treating the kitchen as a profit centre.

Budgeting and responsibility accounting

A significant problem in profit centre accountability concerns what definition of profit should be used. Care should be taken to adhere to the golden rule of only holding a manager accountable for factors that he or she can influence. The exact boundary of a particular manager's sphere of influence is not always clear cut, however. For example, with respect to insurance, a manager may affect the premium paid due to the level of care taken ensuring adequate security is exercised over an asset held in his or her area. The selection of the insurance policy purchased tends to be a decision taken at the level of head office, however. Who, therefore, should be held accountable for insurance premium expense? Should it be the manager in charge of the asset insured, or the head office official responsible for negotiating and purchasing the insurance premium? This is but one example of many where it is not easy to trace responsibility for a particular expense to a single functional area.

Possible measures of profit that can be used to gauge a profit centre's performance include:

- (a) Gross profit – this is appropriate if the profit centre manager's main sphere of influence is limited to sales and cost of sales.
- (b) Contribution margin – this is appropriate where the majority of fixed costs are relatively uncontrollable by the profit centre's manager. Over the long term, most fixed expenses are partially controllable, however.
- (c) Profit before tax – this measure of profit will frequently include expenses that lie beyond the profit centre manager's scope of influence. Its use can be defended on the ground that it focuses the head of the profit centre on maintaining revenue at a level that covers all expenses, not merely those that he or she can directly influence.

d) Investment centres

Several particular issues arise in connection with investment centre accountability. In this section, the issues surrounding the scope of an investment centre's accountability are initially outlined. Following this, performance measures that may be used in investment centres are described.

Scope of investment centre accountability

It is evident from [Figure 9.3](#) that of the four generic types of responsibility centre, investment centres encompass the greatest span of accountability (note how all three dimensions of accountability referred to in [Figure 9.2](#) are captured in an investment centre). The more comprehensive nature of an investment centre's accountability becomes particularly apparent when we recognise the incomplete nature of measuring profit without regard to the investment base that generates the profit. If your bank account earned you \$200 interest last year, you would not be able to make an informed comment on whether this represents a good rate of return unless you knew what you had deposited in the account, i.e., how big an investment you had made. Imagine a hotel with two restaurants, a large restaurant earning an annual profit of \$500,000 and a small restaurant earning an annual profit of \$100,000. Due to its higher profit, there may be a tendency to view the large restaurant as the high performer. If, however, the restaurants were established as investment centres and the large restaurant had assets of \$10 million (return on investment = 5 per cent), and the small restaurant had assets of \$1 million (return on investment = 10 per cent), it becomes apparent that the small restaurant has the better financial performance.

In the above discussion of profit centres, it was noted that a degree of subjectivity tends to be exercised when defining the level of profit that a profit centre head is to be held accountable

for. This problem is also present in investment centres; however, it becomes exacerbated as judgement has to also be exercised with respect to which hotel assets are to be included in the investment centre's scope of accountability. Again, the golden rule of only holding managers accountable for factors that they can influence should be applied. This signifies that heads of investment centres should only be held accountable for an asset where they can influence whether it is purchased or sold. A further issue concerns the value that should be assigned to assets. This issue can be challenging as there can be a wide discrepancy between the book and market value of a fixed asset. This problem is discussed at some length in advanced management accounting texts; however, it is beyond the scope of this text. Nevertheless, it is noteworthy that the vast majority of companies use the book value of assets when monitoring the performance of investment centres.

Performance measures used in investment centres

RETURN ON INVESTMENT

The most widely used performance measure in investment centres is return on investment (ROI). It is normal to state ROI as a percentage, i.e., $\text{Profit} \div \text{Assets} \times 100$. As noted in [Chapter 5](#), ROI can be sub-divided into a profit margin and an asset turnover component. This signifies that an investment centre's ROI performance can be further analysed by considering its profit margin performance as well as its asset turnover performance.

There is a particular shortcoming that can arise when managers are encouraged to maximise their investment centre's ROI, however. Managers in high performing centres might be motivated to sell relatively high performing assets while managers in low performing divisions may be motivated to purchase relatively low performing assets. A scenario outlining how this can occur is presented in [Box 9.1](#).

Box 9.1

Highlighting a problem with ROI accountability

Consider the case of GlobalHotels, a large international company. The General Managers of the company's European hotels have been told by the director of European operations to maximise the ROI of their respective hotels. GlobalHotels has a corporate long-term ROI target of 10 per cent. Information relating to last year's performance in its Madrid and Barcelona hotels appears below.

	Madrid Hotel	Barcelona Hotel
Profit	€20,000	€90,000
Investment	€500,000	€500,000
ROI	4%	18%

Imagine the General Manager of the Madrid Hotel has identified an asset that she believes will provide an annual profit of €18,000 and can be purchased

for €200,000. She wants to purchase the asset as it will increase her hotel's ROI to 5.4 per cent $[(€20,000 + €18,000) \div (€500,000 + €200,000)]$.

Meanwhile, the General Manager of the Barcelona hotel wants to sell one of his hotel's lower performing assets for its book value of €180,000. The sale of this asset will reduce his hotel's annual profit by €21,600. The Barcelona hotel's General Manager has justified his decision to sell on the basis that it will increase his division's ROI from 18 per cent to 21.4 per cent $[(€90,000 - €21,600) \div (€500,000 - €180,000)]$.

While the heads of the two divisions are following the Managing Director's directive of maximising their respective hotel's ROI, the presence of sub-optimal decision making is clear. GlobalHotels is preparing to buy an asset that will provide an ROI of 9 per cent $(€18,000 \div €200,000)$ and at the same time to sell an asset that provides an ROI of 12 per cent $(€21,600 \div €180,000)$, i.e., it is proposing to buy an asset that earns less than the company's target 10 per cent ROI, and sell an asset that is currently earning a return greater than the company's target 10 per cent ROI. This example highlights how a General Manager that is motivated by a desire to maximise divisional ROI may be acting in a manner that is contrary to corporate interests. This particular problem is avoided if residual income (explained in [Box 9.2](#)) is used in the place of ROI.

RESIDUAL INCOME

Residual income is calculated as follows:

$$\text{Investment centre profit} - \text{Capital charge}$$

(The capital charge is: Investment centre's assets \times Required rate of return)

Residual income can be used instead of ROI to evaluate the performance of an investment centre. Increasing an investment centre's residual income signifies increased performance. An example that shows the calculation of residual income is presented in [Box 9.2](#).

Box 9.2

Calculating residual income

The GlobalHotels scenario developed in [Box 9.1](#) will now be used to show the calculation of residual income. The schedule below calculates the residual income for the two hotels prior to the proposed sale and purchase of assets using the formula:

$$\text{Investment centre profit} - \text{Capital charge}$$

(The capital charge is: Investment centre's assets \times Required rate of return)

Residual income prior to proposed purchase and sale of assets

Profit	€20,000	€90,000
<i>minus</i> Capital charge	<u>€50,000^a</u>	<u>€50,000^a</u>
Residual income	<u>(€30,000)</u>	<u>€40,000</u>

a: 10% × €500,000

Residual income will now be used to demonstrate that the changes proposed by the General Managers in the two hotels should not be made.

Residual income following proposed purchase and sale of assets

	Madrid Hotel	Barcelona hotel
Profit	<u>€38,000</u>	€68,400
<i>minus</i> Capital charge	<u>€70,000^a</u>	<u>€32,000^b</u>
Residual income	<u>(€32,000)</u>	<u>€36,400</u>

a: 10% × €700,000

b: 10% × €320,000

Note how the residual income of both hotels would decline if the proposed sale and acquisition of assets were to occur. The Madrid hotel's residual income would decline from negative €30,000 to negative €32,000, and the Barcelona hotel's residual income would decline from €40,000 to €36,400. If the Director of European Operations were to use maximisation of residual income rather than maximisation of ROI as the performance target for the hotels, the two hotel general managers would be motivated to act in a manner that is more consistent with the hotel group's overall interests. This highlights how using residual income as a performance measure can result in better outcomes than using ROI to motivate managers. Despite this, ROI is much more widely used than residual income in investment centres. This may be because managers find it more intuitively appealing to conceive of return as a percentage of assets.

4) Roles of the budget

We will now move to look at budgeting. It was noted in this chapter's introduction that the budget plays an important role in organisational control as it provides a set of benchmarks used in the appraisal of responsibility centres' performance. Control is somewhat multi-dimensional, however, and a different facet of control is evident in each of the budgetary roles outlined below. As you read through these budgetary roles, it would be helpful to consider how each role contributes towards maintaining control in a hotel. The main roles of budgets are:

- a) **Authorisation:** The budget sets the limit on what a department can spend. This budgetary role is particularly evident in connection with departments that have a high proportion of discretionary expenditure (as noted earlier, this is expenditure where there is no strong

Budgeting and responsibility accounting

cause/effect relationship that can inform management deliberations on how much should be spent). Hotel departments with a high proportion of discretionary expenditure include marketing (the amount of funds allocated to the advertising budget is highly discretionary) and personnel (the amount allocated to training is highly discretionary). Managers in these cost centres can be heard to say “my budget is \$200,000”. What they mean by this is, the budget authorises \$200,000 of expenditure for their cost centre in the current year.

- b) **Forecasting:** The annual budgetary cycle represents a discipline requiring the sales and marketing departments to provide sales estimates for the forthcoming year. These estimates require a forecast of trends and developments in the hotel’s relevant commercial environment. Factors to be considered in forecasting include the general economic climate, the timing of significant local events that will affect occupancy levels (e.g., large conventions), and also competitive developments such as the opening date of a new competing hotel.
- c) **Planning:** The budget represents a plan. Managers should ensure that the forecast commercial environment informs their planning. The importance of planning is captured by the adage: “No business plans to fail. Many that flop, failed to plan”.
- d) **Communication and co-ordination:** Preparation of a budget requires extensive negotiation between members of the organisation. This negotiation comprises vertical communication (superiors discussing appropriate budgetary targets with subordinates), and also horizontal communication (cross-departmental discussion). Communication is important as the information shared can signify a key learning phase for management. It is also a process that requires compromise between different parts of the organisation holding incompatible aspirations. Without the discipline imposed by the annual budgetary cycle, different areas of the hotel might increasingly pursue irreconcilable objectives (e.g., marketing seeking a significant increase in occupancy in a year of restricted room availability due to the rooms division’s plans to conduct room refurbishments). This highlights how horizontal communication triggered by the budgetary cycle facilitates improved organisational co-ordination.
- e) **Motivation:** The budget provides a quantified performance target to be strived for. An enduring finding of psychological research suggests that a quantified target provides management with a point of focus and greater motivation than when a manager has no target other than being told to “Do the best you can”.
- f) **Performance evaluation:** As already noted, the budget represents an important vehicle generating benchmarks that can be used as a basis for assessing performance.
- g) **Attention directing:** If something is monitored and recorded in the budget, it is more likely to be regarded as important. The adage “What gets measured is what gets managed” is pertinent here. Imagine that a hotel has decided to analyse its restaurant activity in a manner that distinguishes between sales made to hotel guests and sales made to customers not staying at the hotel. When budgeting for restaurant sales, two factors would drive projected sales to hotel guests, the projected number of guests staying at the hotel and the projected proportion of hotel guests that dine in the hotel’s restaurant. If the budget were to be prepared in this manner, it would direct management’s attention to a dimension of performance that may have hitherto not been accounted for, i.e., the proportion of hotel guests that dine in the hotel’s restaurant. A reference in the budget to the proportion of hotel guests that dine at the hotel’s restaurant will likely result in managers focusing more attention on this dimension of performance.

This range of budgetary roles highlights the degree to which there are a host of ways that hospitality managers are affected by budgeting. To illustrate one particular example of a manager’s interaction with the budget, financial decision making in [action case 9.1](#) shows how a human resource manager will draw on budget information when determining staffing needs.

FINANCIAL DECISION MAKING IN ACTION CASE 9.1

Human Resource Managers' use of budgets when planning staffing levels

Imagine a manager in a hotel's human resource department is attempting to determine staffing needs in housekeeping in the first quarter of a year. Staffing level plans are based on the hotel's sales department's estimates of daily room sales which are developed in connection with each year's budget (it is normal for these forecasts to be updated during the year as events affecting demand unfold).

For several years, the hotel's human resource department has applied the standard that housekeeping maids should clean 20 rooms in a standard eight-hour working day. By dividing the projected daily room sales by the 20 rooms per day standard, the human resource manager can determine the number of staff necessary to complete the projected room cleaning workload. Once projected staffing needs have been determined, the human resource manager can identify those times when the hotel is likely to experience a surplus or shortage of labour.

This calculation procedure is outlined in the schedule below. The "room sales" column identifies the projected daily room sales, and the "performance standard" column records the number of rooms a maid should clean in a day. The "labour days required" is calculated by dividing "room sales" by the "performance standard". The "full time staff available" column records the hotel's projected supply of maids. Finally, the "adjustment needed" column highlights when there is a projected surplus or shortage of labour (brackets highlight a shortage).

Day	Room sales	Performance standard	Labour days required	Full time staff available	Adjustment needed
Monday	150	20	7.5	9	1.5
Tuesday	150	20	7.5	9	1.5
Wednesday	160	20	8.0	9	1.0
Thursday	160	20	8.0	9	1.0
Friday	220	20	11.0	9	(2.0)
Saturday	220	20	11.0	9	(2.0)
Sunday	180	20	9.0	9	0

From the information developed, the human resource manager will note a projected surplus of staff on Mondays to Thursdays and a shortage on Fridays and Saturdays. This information would be used when developing staffing rosters. Attempts could be made to encourage staff to take any planned days off work on Mondays to Thursdays. In addition, the human resource department may feel it necessary to schedule some overtime or for more casual staff to be recruited to cover the projected labour shortage on Fridays and Saturdays.

5) Behavioural aspects of budgeting

Traditionally, the behavioural aspects of control systems have been given little attention, and accountants have tended to be viewed as technocrats with little interest in the behavioural implications of control systems. More recently, however, there appears to be a growing awareness of the behavioural implications of budgetary control. Consistent with this development, the following four major budget-related behavioural issues are now discussed:

- a) Budgets as targets
- b) Budgets and performance evaluation
- c) Manager participation in budget setting
- d) Politically charged nature of budgeting.

a) Budgets as targets

We noted above that one of the roles of the budget is to motivate. Setting budgetary targets in a manner consistent with stimulating high motivation requires considerable managerial judgement. Psychological researchers suggest that higher motivation results when targets are just beyond reach, but not so hard that the manager views them as unreasonable (i.e., the budgetary target is perceived as challenging but not unfair). If budgetary targets are set too high, managers might view them as unreasonable and will lose motivation. This view on the appropriate level of difficulty in budgetary targets raises two issues:

- a) As we all differ in the way we respond to challenging targets, senior managers responsible for setting budgetary targets should consider each subordinate manager's psychological nature and likely reaction to a challenging goal.
- b) If the desire to set high targets results in some targets not being achieved, the budget will lose some of its value as a co-ordinating device. For example, if the desire to set challenging targets results in budgeted sales levels being set 5 per cent higher than management's sales forecasts, there is a high likelihood that the budgeted sales levels will not be achieved. The budgeted level of sales drives operational plans, however, and areas such as F&B, rooms and laundry use the sales budget as a basis for planning their staffing and purchasing needs. Accordingly, failure to achieve a budgeted sales level can compromise planning and result in wasted resources. This problem, which stems from two competing roles of the budget (i.e., the motivation and co-ordinating roles), is diagrammatically depicted in [Figure 9.4](#).

In [Figure 9.4](#), the diagonal line labelled "budget difficulty level" shows how an increasingly difficult budget signifies the setting of increasingly high performance standards. The "actual performance" line is positively sloping as a result of the motivating effect of the increasingly challenging budget. After a critical point, however, the actual performance will decrease. This is because if the budget is set at exceedingly challenging levels, it will lose its power to motivate (managers feel like "throwing in the towel"). From the perspective of stimulating maximum management performance, the budget should be set at the level identified as "maximum motivation budget". From the perspective of optimising the budget's use as a co-ordinating vehicle, however, it should be set at the level identified as "accurate forecast budget", i.e., the point at which the "budget difficulty level" and "actual performance" lines intersect.

There is no easy answer as to whether the budget should be set at the "accurate forecast" or the "maximum motivation" level, as the nature and priorities of each business unit need to

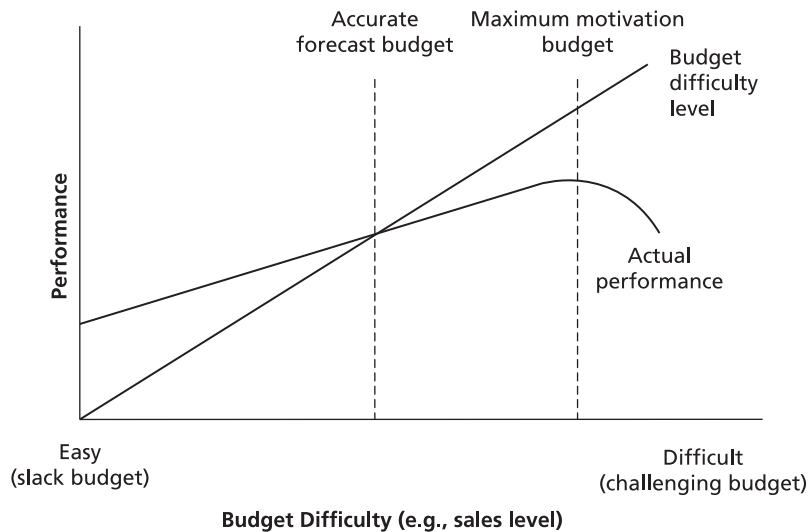


Figure 9.4 Budget difficulty and management performance
(adapted from Emmanuel et al. 1990)

be considered. If high emphasis is attached to accounting performance measures in a hierarchical organisation, failure of a subordinate to achieve a budgetary target will carry unfavourable budgetary performance implications for the subordinate's superior. As a result, in this situation we can expect the "accurate forecast" budget to predominate over the "maximum motivation" budget.

b) Budgets and performance evaluation

Budgets represent an important basis for monitoring the performance of managers. Management rewards that result from achieving budgetary targets include salary increments, promotion, and enhanced peer and self esteem. In light of the significance of budgets, managers frequently find budget setting to be a highly emotionally charged organisational activity. To the extent possible, it is important that managers are set equally difficult budgets, as perceived inequity can be disruptive and adversely affect morale.

Budgets cannot always serve as a strong basis for appraising performance, however. Before the budget is used in this manner, the factors outlined in [Box 9.3](#) should be considered.

Box 9.3

Factors affecting the accountability of a department's performance

Before a manager attempts to use the budget to appraise the performance of a department, the following factors should be considered:

- a) Does the key dimension of a manager's work lend itself to accounting measurement? The manager of a restaurant can be held accountable for restaurant profit, and the manager of housekeeping held accountable for the average cost of cleaning a room. In discretionary cost centres such as personnel, public relations and accounting, however, it is difficult to determine a key dimension of performance that lends itself to accounting measurement.
- b) To what extent is the performance of the responsibility centre in question affected by the actions of managers in other business units? Consider the case of a laundry manager. Laundry is a service department providing clean laundry to other hotel departments. Laundry managers frequently complain that a particular department's low inventory of linen necessitates the provision of fast turnarounds. Maintaining a fast turnaround time can require laundering in uneconomic batch sizes, i.e., starting a washing cycle before the washing machine is filled to capacity. If departments such as F&B and rooms have the ability to require fast laundry turnarounds, the laundry department's independence is compromised, and part of its cost structure will be driven by the actions of other hotel responsibility centres. Where this type of situation exists, it is inappropriate to place emphasis on budget achievement as a performance indicator. High interdepartmental dependency is often evident in restaurant management where sales can be affected by the hotel's occupancy levels. In fact, restaurant sales can be affected more by the hotel's effectiveness in marketing rooms than the restaurant manager's actions.
- c) Is the hotel activity in question relatively new and therefore difficult to budget for? Imagine that a new tennis facility has been opened in a hotel that emphasises the achievement of budgetary targets. As it will be difficult to forecast the expected court usage in the first year, care should be taken not to place too much emphasis on the budget when appraising the performance of the tennis complex manager. This highlights the fact that achievement of a budgeted target can be affected as much by forecasting accuracy as good performance.

c) Manager participation in budget setting

Participation refers to the degree to which managers are involved in setting the budgetary targets for which they will be held accountable for. Three benefits derive from greater participation:

- a) It can give rise to a more informed budgetary process, e.g., a manager working in a particular restaurant may well have a more intimate understanding of operational factors in the restaurant than the director of F&B.
- b) Greater participation in target setting is likely to result in a manager feeling greater commitment to achieving the target set (i.e., internalising the budget goal).

- c) Participation in budget setting facilitates organisational learning as it provides managers with the opportunity to better understand the rationale for the organisation's direction.

A danger arises with high budget participation, however, as it provides managers with an opportunity to influence the setting of targets in a way that makes them relatively easy to achieve. When the budget contains easy targets, it is described as containing “slack”. In addition to securing an appropriate level of participation from subordinates when setting budgets, it is also important that senior managers are involved. The involvement of senior managers facilitates vigilance over any tendency for budgetary slack creation. In addition, it provides senior managers with the opportunity to develop their understanding of management issues confronting subordinates and to enhance the general perception of the budget's importance. If the budgetary process is not perceived to be important, its power as a vehicle of organisational control will be adversely affected.

d) Political aspects of budgeting

Budget setting represents a major negotiation process involving and affecting the entire organisation. This negotiation can be seen as vital to effective organisational functioning. The budget is the most powerful vehicle driving the reconciliation of potentially conflicting aspirations held by managers representing the many disparate parts of the organisation. When we consider the degree of compromise that has to be achieved, it is not surprising that managers frequently comment on frustration experienced during the budget-setting process. In its capacity of reconciling differences within functions, across functions, divisions and the corporate office, the budget department will have to frequently return budgets to initiators for revision. During this process, many managers will discover that some organisational aspirations that they may have held for some time will not materialise. It is therefore not surprising that budget setting can become highly political. Political aspects of budgeting include individuals competing for resources in a manner designed to gain the best outcome for themselves, and managers informally developing coalitions in order to increase their bargaining strength.

This potential for politics in the budget setting process is exacerbated when we recognise that, for many managers, the budget identifies the upper limit for their expenditure. The size of a manager's budget is frequently related to the manager's perceived organisational importance and power. Accordingly, ambitious managers can be expected to be focused on securing large budgets for their departments. Conflicting ambitions of managers provide further scope for a wide range of political game playing during the budget-setting process.

6) Technical aspects of budget preparation

In this section, the preparation of budget schedules will be illustrated by means of a worked example. The worked example demonstrates preparation of the purchases, production and labour cost budget schedules in a restaurant setting.

Before considering these specific budget schedules, it is important to note that from a technical stand-point, the most important element of the budget is the budgeted sales level. This is because the sales estimate drives much of the remainder of the budget. In the following worked example, note how budgeted sales information is a prerequisite to the preparation of the budget schedules. It should not be forgotten, however, that as sales are affected by environmental factors that are external to the organisation, projecting next year's sales is perhaps the

Budgeting and responsibility accounting

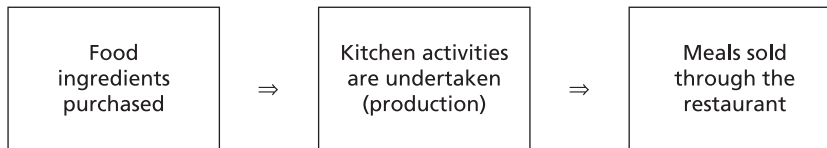


Figure 9.5 Kitchen and restaurant physical sequencing of events

most difficult aspect of forecasting in the budgetary cycle. Further, the degree to which sales are volatile in the hotel industry was noted in the first chapter.

When we think of a production setting such as a kitchen, we tend to think of activities as they occur. [Figure 9.5](#) depicts this sequence, i.e., food ingredients are purchased, kitchen staff then use these ingredients in the preparation of meals, and finally the meals produced are sold in the restaurant.

When producing a budget, however, we need to conceive of these events in reverse order. This is because the amount of food ingredients purchased will be driven by the projected kitchen production activity, and the amount of kitchen production activity is determined by food sales made in the restaurant. As restaurant sales drive kitchen production activities, and kitchen production activities drive food ingredients purchased, if we are attempting to prepare a budget for food ingredients purchased, we must first prepare a sales budget and then prepare a kitchen production budget. This sequencing of the preparation of budget schedules relating to the kitchen is depicted in [Figure 9.6](#).

The remainder of this chapter works through an example that demonstrates how budgeted schedules for purchases, production and labour costs can be prepared. In this example, note how certain budget schedules can only be prepared once other budgeted schedules have been completed.

Imagine a large New Orleans hotel complex “the JazzFest” which makes its own pastries. The JazzFest hotel sells the pastries in its three restaurants and coffee shop bar. In addition, an outside baker purchases any excess pastries for cost price + 10 per cent.

Ingredients required for pastry production include flour, fruit, margarine, salt and water. One kilogram of flour is used per tray of pastries produced. Flour costs \$1.50 per kilogram. At the end of the month, the pastry chef likes to always maintain in stores enough flour to support 10 per cent of the following month’s production.

Following preparation of the pastry dough, pastries are baked on trays, with each tray containing 25 pastries. To cater for any unexpected increases in demand, at the end of any month, the chef likes to have 5 per cent of the following month’s projected demand for pastries stored in

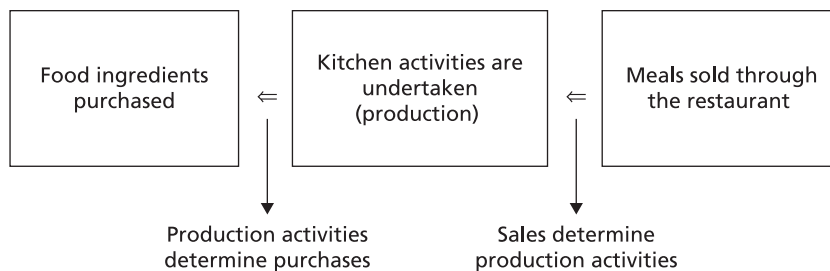


Figure 9.6 The sequence in which budget schedules relating to kitchen activities are prepared

the freezer (freezer storage is handled on a rotating basis with no pastries held in the freezer for more than 10 days). On 1st April it is anticipated that 125 pastries will be held in the freezer.

The head chef has developed two schedules, the first providing details of pastry production labour costs ([Exhibit 9.1](#)), and the second providing information on anticipated demand for pastries over the next four months ([Exhibit 9.2](#)).

Exhibit 9.1

JazzFest pastry production labour costs

	Hourly rate	Time taken to produce 10 trays of pastries
Pastry chef	\$22 per hour	5 hours
Junior kitchen staff	\$14 per hour	2 hours

Exhibit 9.2

JazzFest projected sales demand for pastries

	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>
Projected pastry sales	2,500	3,000	3,000	2,500

The above information is sufficient to allow preparation of:

1. the budgeted pastry production schedule for April, May and June,
2. the budgeted purchase of flour schedule for April and May,
3. the budgeted pastry labour cost schedule for April, May and June.

It is evident from [Figure 9.6](#) that the purchases budget cannot be prepared until the production budget has been prepared. In addition, as the labour cost information provided in the chef's first schedule relates to hourly production costs, the budgeted labour cost schedule can only be prepared once the pastry production budget schedule has been finalised. As will be seen, preparation of the budgeted production and purchase schedules becomes somewhat complicated by movements in the opening and closing balances of inventory.

Preparation of the budgeted pastry production schedule

An easy way to prepare a budgeted production schedule involves adding the inventory balance required at the end of the period to the production throughput required to support the period's sales (this aggregated figure can be referred to as "number of pastries to be made available"). The amount of pastries that must be produced in the period can then be determined by deducting the number of pastries held at the beginning of the period (i.e., we do not need to produce what is already available at the beginning of the period). Note that the number of pastries at the end of a particular month (closing inventory required) is the same as the number of pastries at the beginning of the next month (opening inventory balance). JazzFest's budgeted pastry production schedule is presented as [Exhibit 9.3](#).

Exhibit 9.3**JazzFest budgeted production of pastries**

	April	May	June
Closing inventory required (5% of following month's sales)	150	150	125
+ Sales	<u>2,500</u>	<u>3,000</u>	<u>3,000</u>
Number of pastries to be made available	2,650	3,150	3,125
– Opening inventory balance	<u>125</u>	<u>150</u>	<u>150</u>
Production of pastries	<u>2,525</u>	<u>3,000</u>	<u>2,975</u>

Preparation of the budgeted purchase of flour schedule

Having determined the monthly production of pastries, we are now in a position to prepare the budgeted purchases of flour schedule. Projected purchases for June cannot be determined as we are unable to budget July's production of pastries (we do not know August's projected sales and this figure is needed to determine July's closing inventory required), which is necessary to determine the flour inventory required at the end of June. When preparing the budgeted purchases schedule, we can follow the approach taken to prepare the budgeted production schedule. Determining the closing kilograms of flour required involves dividing the number of pastries to be produced in the following month by 25 (there are 25 pastries per tray) and then multiplying by 0.1 (enough flour to support 10 per cent of next month's demand must be held in stock at the month end). Once the kilograms of flour to be purchased in the month have been determined, this amount can be multiplied by \$1.50 to determine the cost of flour to be purchased. JazzFest's budgeted purchase of flour schedule is presented as [Exhibit 9.4](#).

Exhibit 9.4**JazzFest budgeted purchase of flour schedule (in kilograms)**

	April	May
Closing inventory of flour required (following months production \div 25 \times 0.1)	12.0	11.9
+ Flour necessary to support production (this month's production \div 25)	<u>101.0</u>	<u>120.0</u>
Amount of flour to be made available	113.0	131.9
– Opening inventory balance (current months production \div 25 \times 0.1)	<u>10.1</u>	<u>12.0</u>
Flour purchased in kilograms	<u>102.9</u>	<u>119.9</u>
Flour purchased in \$ (kg. purchases \times \$1.50)	<u>\$154.35</u>	<u>\$179.85</u>

Preparation of the budgeted labour cost for pastry production schedule

Compared to the budgeted production and purchases schedules, preparation of the budgeted labour cost schedule is relatively straightforward. From [Exhibit 9.1](#) we can see that it takes a pastry chef 5 hours to produce 10 trays of pastries, therefore 1 tray requires half an hour of pastry chef labour. As these chefs are paid \$22 per hour, it costs \$11 of pastry chef labour to make 1 tray of pastries. As 2 hours of junior kitchen staff labour is involved in the production of 10 trays of pastries, 1 pastry tray requires 0.2 hours of junior kitchen staff labour. The preparation of 1 tray of pastries therefore costs \$2.80 of junior kitchen staff labour ($\$14 \times 0.2$). JazzFest's budgeted labour cost for pastry production schedule is presented as [Exhibit 9.5](#).

Exhibit 9.5

JazzFest budgeted labour cost for pastry production

	April	May	June
Number of pastry trays produced (pastry production \div 25)	101	120	119
Pastry chef labour cost (\$11 per tray)	\$1,111.0	\$1,320.0	\$1,309.0
Junior kitchen staff labour cost (\$2.8 per tray)	<u>\$ 282.8</u>	<u>\$ 336.0</u>	<u>\$ 333.2</u>
Total labour cost	<u>\$1,393.8</u>	<u>\$1,656.0</u>	<u>\$1,642.2</u>

7) Summary

In this chapter we have reviewed responsibility accounting and budgeting. Responsibility accounting refers to the way that different managers are held accountable for different aspects of an organisation's activities. The main types of responsibility units are cost, revenue, profit and investment centres. We noted the importance of budgetary control in light of the many organisational roles performed by budgeting. In addition, we considered behavioural implications of budgeting and reviewed how to prepare a restaurant's purchases, production and labour cost budget schedules.

Having read the chapter you should now know:

- what issues need to be considered when deciding whether a responsibility centre should be a cost, revenue, profit or investment centre,
- how to compute residual income as an alternative to using ROI when measuring the performance of an investment centre,
- the main organisational roles of budgeting,
- behavioural issues that need to be considered when using budgetary controls,
- how to produce a purchases, production and labour cost budget schedule.

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Problems

Problem 9.1

Describe the way in which a responsibility accounting system is closely linked to an organisation's budgeting system.

Problem 9.2

Joe Smith is the stores and purchasing manager for the Pristine Waters hotel and golfing complex located on one of Australia's Whitsunday Islands. Joe receives purchase requisitions from other department heads in the organisation. When he took the job, Joe was informed that he had responsibility for servicing the purchasing needs of other department heads. In the case of rarely purchased items, it is customary for Joe to be provided with specifications from the department initiating the request.

In June last year, the hotel secured the contract for a large conference to take place in February this year. As a result of September and October meetings with the conference organisers, it was decided that the conference would include a high-tech "real time" link-up to a similar conference being held at the same time in the USA. This live link-up was given significant prominence in the conference's promotional material. To facilitate the link-up, the hotel needed to buy a particular computer accessory. Maxine Bromwich, the head of the hotel's banquet and conference department, informed Joe of the need to purchase this computer accessory in late November last year. At that time she also informed him that it would be needed for the February convention. Following initial inquiries, Joe discovered that his regular supplier of computer equipment did not stock the part. He called many other potential suppliers and finally found a computer specialist located in Perth that agreed to supply the required accessory. Joe mailed the purchase order to the chosen supplier in mid-December. In mid-January, following his annual three-week holiday, Joe telephoned the supplier to ensure that all was well with the shipment. At that time the supplier informed him that the computer

part was on its way. A week before the conference, the part had not arrived so Joe called again, and again he was told not to worry and that the part had left on time. Two days before the conference start date the part had still not arrived. Joe called again and it was discovered that the part had been mailed to the wrong address.

At the commencement of the conference, Maxine Bromwich informed delegates that due to a technical hitch, the forum that was to involve the link-up to the US conference had been cancelled. This caused considerable disappointment amongst delegates and as part of a damage limitation exercise, they were reimbursed with \$145. This represents the price charged to delegates for one night's accommodation at the hotel. This damage control exercise signified a loss of \$60,900 ($\145×420 delegates) for the hotel.

Explain in one page or less, how this \$60,900 loss should be accounted for. Your answer should include an appropriately reasoned justification for the answer you provide. Should it be charged to Joe Smith's purchasing department, or should it be charged to Maxine Bromwich's banquet and conference department? Maxine Bromwich has complained that if it is to be charged to her department, she will be unable to meet her department's budgeted profit for the year.

Problem 9.3

The "Dreaming of Stars" company owns a chain of large hotels. Its hotel located on America's eastern seaboard is its largest and comprises a casino, four restaurants, extensive conference facilities, and a health club.

Over the last month, business activity at the hotel has been significantly down following a radical political group's terrorist threat to blow up a plane while in flight over American airspace. The terrorist threat has been taken very seriously by air aviation authorities and the matter has received considerable attention from the news media.

Senior management at the hotel feel this is a largely uncontrollable setback, but that demand should return to normal levels in a couple of months' time. In the mean time, many unskilled workers have been temporarily laid off. Highly skilled chefs, however, are likely to find alternative employment if laid off and the director of F&B has argued convincingly that it would be to the long-term detriment of Dreaming of Stars if they were to be allowed to leave. As a result of this stance, the highly skilled chefs have been employed in various menial facility maintenance tasks such as maintaining gardens, building storage racks in the store rooms and painting some of the hotel rooms.

Upon receipt of his most recent performance report, the head of the maintenance department was left fuming. The performance report indicated a 70 per cent adverse variance compared to budgeted expenditure for the month. He went straight to the accounting office and complained:

This just isn't fair. The reason I'm 70 per cent over budget this month is I'm using that elitist bunch of pastry cutters to do work that is going to get their finger nails dirty. I normally pay my boys \$9 per hour, this crowd comes in at \$13.50 per hour. These guys know I can't lay them off. They're treating work in my department like it's a joke, and once they've gone back behind revolving doors I'm going to have to work my boys overtime in order to meet our scheduled maintenance for the year.

Required:

This is a fine example of how the accounting system can give rise to undesirable ill-feeling within a company. What do you see as the best course of action for the accountant?

Problem 9.4

As part of a consulting assignment, you have been asked to review the appropriateness of a hotel's responsibility accounting system. In the course of conducting your review, you become aware of a degree of dissatisfaction felt by the head of the hotel's facility maintenance department.

The facility maintenance department was established as a cost centre a number of years ago. In recent years the department has experienced problems containing costs within limits established by the budget. One particular area of concern to the head of the department is the cost of repairs to the hotel's three staff buses which have recently been involved in a series of minor accidents. Most of these accidents have been no more serious than bodywork dents resulting from reversing into concrete pylons that surround the hotel car park's perimeter. Consistent with repairs to most of the hotel's assets, bus repairs are managed by the facility maintenance department. In light of this, the cost of performing the repair work is charged to the facility maintenance department. It is generally accepted that this department contains the greatest expertise and local contacts to effectively oversee asset repairs.

Three part-time employees are employed by the hotel to drive the staff buses. As their pick up schedules are determined by the residential location of rostered staff, the drivers report to the head of personnel. This arrangement facilitates the flow of paperwork as the personnel department maintains staff roster records and also the database containing staff members' addresses.

The head of the facility management cost centre has complained to you that he has asked the bus drivers to take more care when driving the buses. He believes, however, that the drivers take little notice of him as they feel primarily accountable to the head of personnel.

Required:

What recommendation would you make in your consulting report concerning the specific lines of accountability uncovered by this case?

Problem 9.5

The ManU Hotel is located close to Manchester United's football stadium. It has a souvenir shop that sells two main product lines: hats and scarves in the Manchester United colours. The quarterly sales budget for the forthcoming year is as follows:

Quarter	Hats	Scarves
1	1,200	600
2	800	400
3	600	300
4	1,400	700

It is expected that the shop will be holding 240 hats and 180 scarves in stock at the beginning of the year. The shop manager always likes to keep 20 per cent of the next quarter's hat sales in stock and 30 per cent of the next quarter's scarf sales. Sales of hats and scarves in the first quarter of the following year are expected to be 25 per cent higher than the first quarter of the forthcoming year.

Required:

Prepare the quarterly purchases budget for hats and scarves for the forthcoming year.

Problem 9.6

The Asia Pacific Regional Director of the Olympus hotel group has told the region's hotel General Managers that he would like them to focus on maximising the ROI in their respective hotels. The Olympus group has a corporate long-term ROI target of 10 per cent. Last year's performance data for two of the region's hotels appears below:

	Hong Kong Hotel	Singapore Hotel
Profit	\$900,000	\$300,000
Investment	\$6,000,000	\$6,000,000

The General Manager of the Hong Kong Hotel wants to sell one of his hotel's lower performing assets for its book value of \$400,000. The sale of this asset will reduce his hotel's annual profit by \$48,000. The hotel's General Manager is justifying the asset sale on the grounds that it will increase the hotel's ROI.

The General Manager of the Singapore Hotel has identified an asset that she believes will provide an annual profit of \$40,000 and can be purchased for \$500,000. She wants to purchase the asset as she believes it will increase her hotel's ROI.

Required:

- Are the two hotel General Managers correct that they would be increasing their respective hotels' ROI if they were to make the asset purchase and sale that are being proposed.
- Conduct a residual income analysis to determine if the two hotels should proceed with the proposed asset purchase and sale.

Problem 9.7

The Sea Breeze is a 200-room family resort hotel in Blackpool, Northern England that is open 7 days per week. It has one restaurant and restaurant sales are only made to hotel guests. During the next quarter beginning 1st April, the rooms manager anticipates an average occupancy of 70 per cent and an average of 2.5 people in each occupied room. Restaurant records indicate that 90 per cent of guests eat breakfast, 30 per cent eat lunch and 60 per cent eat dinner at the restaurant. The average contribution earned from covers served in the restaurant is £4 for breakfast, £8 for lunch and £12 for dinner.

Required:

Calculate the estimated contribution (revenue – variable costs) that will be earned at Sea Breeze's restaurant in the next quarter beginning 1st April.

Problem 9.8

The ScenicScene hotel in Paris has a souvenir shop that sells small Eiffel Tower replicas. The shop manager likes to keep 40 per cent of the following month's projected sales of the replicas in stock. The shop purchases the statues for €6 each. Projected sales of the replicas in the next four months are:

Budgeting and responsibility accounting

	June	July	August	September
Number of replica sales	600	700	800	500

The shop has projected it will be holding 240 replicas in stock on 1st June.

Required:

Produce a monthly purchases budget for the replicas covering June, July and August.

Problem 9.9

The manager of RitzyRooms, a small 40-room Saskatchewan roadside motel is seeking a \$90,000 bank loan bearing a 10 per cent annual rate of interest. Mr Scroogy, the manager of the bank considering the loan application, requires the motel to produce a budgeted income statement for next year, 20X1. Mr Scroogy requires this information to help him assess RitzyRooms' credit risk.

RitzyRooms' accountant has assembled the following schedule of information to facilitate preparation of 20X1's budgeted income statement.

Number of single rooms	10
Estimated occupancy of single rooms	70%
Single rooms' projected average room rate	\$50
Average contribution earned on single rooms	85%
Number of double rooms	30
Estimated occupancy of double rooms	40%
Double rooms' projected average room rate	\$70
Average contribution earned on double rooms	90%
Operating fixed costs per annum (not including loan interest)	\$180,000
Tax rate levied on profit after deduction of interest expense	40%

Required:

- Assuming the motel is open for 360 days in the year, prepare the budgeted income statement for 20X1. Include the interest on the \$90,000 loan in the budgeted statement.
- Mr Scroogy has a policy of not lending to any business that cannot demonstrate a projected times interest earned ratio greater than 3 (the times interest earned ratio was described in [Chapter 5](#)). Based on the budgeted figures, does RitzyRooms satisfy the bank manager's loan approval requirement?

Problem 9.10

One of the kitchens in a large Las Vegas hotel complex produces fresh local fruit jam. The jam is placed into expensive jars moulded with the hotel's logo, a depiction of tumbling dice. The jam is labelled "Lucky Dip". For several years a jar of "Lucky Dip" has been given as a complimentary gift to all guests staying in the hotel, and the marketing department feel that this promotion has been well received by guests. Some jam is also sold through the hotel's gift shop.

The hotel accountant has provided the head chef with the following schedule that outlines the anticipated demand for jam in the next four months.

	Complimentaries	Shop sales
October	1,000 jars	100 jars
November	800 jars	80 jars
December	1,200 jars	120 jars
January	700 jars	70 jars

The chef likes to have 10 per cent of next month's jam demand already produced and in stock by the month end. On 30th September, 120 jars of "Lucky Dip" were held as inventory.

The chef runs a fruit stocking policy of holding 5 per cent of next month's fruit needs in inventory. On 30th September, 20 kgs of fruit was held in inventory. Each jar of "Lucky Dip" requires 0.5 kgs of fruit. It has been estimated that the fruit will cost \$2 per kg during the year's final quarter.

Required:

Prepare a purchases budget for fruit for October and November.

Problem 9.11

Jamaica's ReggaeRegal is part of a chain of hotels operating in the West Indies. A key performance indicator used in determining bonuses paid to General Managers in the chain is their hotel's return on investment (ROI). Based on the company's cost of capital, the chain's regional director has set a 14 per cent target ROI for hotels in the group. Last year the ReggaeRegal made a profit of \$500,000 from its \$2,500,000 asset base.

At the beginning of the last financial year, the ReggaeRegal hotel had the opportunity to acquire the BrownBean coffee shop and café that adjoins the hotel building. In appraising the BrownBean café, the General Manager determined that it would have cost \$300,000 to acquire. It was also estimated that the hotel would have been able to maintain the BrownBean café's annual profit at around \$50,000 per annum. The General Manager turned down the BrownBean acquisition opportunity as he felt it would reduce his hotel's ROI.

Required:

- Demonstrate what change would have occurred to ReggaeRegal's ROI if it had acquired the BrownBean coffee shop and café.
- Demonstrate whether ReggaeRegal's residual income would have increased or decreased if it had acquired the BrownBean coffee shop and café.
- Based on your answers to a) and b), explain whether you think ReggaeRegal should have acquired the BrownBean coffee shop and café and comment on the appropriateness of the ROI bonus incentive scheme used in the hotel chain.

Problem 9.12

The accountability units listed below have been observed at Rio de Janeiro's RioRegal hotel. For each unit, identify whether it should be a cost centre, revenue centre, profit centre or investment centre. Provide a supporting rationale for the way you classify each unit.

Budgeting and responsibility accounting

- a) A bar
- b) A laundry department
- c) A maintenance division
- d) A restaurant
- e) A shop
- f) A local tours booking agency occupying a single desk in the lobby
- g) A human resource management department
- h) A kitchen
- i) The whole hotel.

Flexible budgeting and variance analysis

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. the value of using flexible budgets,
2. a systematic approach that can be used when preparing variance analyses,
3. the insights resulting from variance analyses,
4. the nature and merits of benchmarking.

1) Introduction

This chapter builds on some of the budget and responsibility accounting issues introduced in the last chapter. Firstly, we examine **flexible budgeting**, a technique that represents a slight refinement of the static budgeting approach described in the last chapter. In a static budgeting system a budget is rigid in the sense that it is not modified once the actual volume of sales is known. While this approach is used extensively, some managers find it helpful to flex budgets up or down in line with the actual volume of sales achieved. Failure to accurately predict the volume of sales is a major factor causing many significant differences between the static budget and actual performance. Under flexible budgeting, however, the effect of a hotel selling more or less than was originally projected is eliminated from differences between the actual and budgeted performance. Elimination of this factor is significant because, by definition, managers in cost centres exert little influence on sales volumes. If managers in cost centres cannot affect sales, why should the effect of selling more than anticipated be included in a variance used to gauge their performance?

A second technique introduced in this chapter is **variance analysis**. “Variance” is the accounting term for any difference between an actual and budgeted amount. Variance analysis relates to the responsibility accounting issues introduced in the last chapter as it involves the isolation of factors contributing to variances. Greater appreciation of what factors lie behind a particular variance supports responsibility accounting through enhanced accountability. The

chapter concludes with a description of benchmarking, a technique that has commanded increasing attention as a management tool in recent years.

2) Flexible budgeting

As just noted, the budget schedules developed in the previous chapter were based on a single set of estimated levels of monthly activity, i.e., the projected sales demand for pastries. A shortcoming of this static approach to budgeting is that invariably the actual level of activity achieved will differ from the budgeted activity level. Can you think of a situation where a restaurant manager is able to exactly predict the number of covers that will be sold in a year? Discrepancies between budgeted and actual activity levels result in variances for revenue and variable costs. These variances are not necessarily reflective of performance, however. A part of each observed variance will be attributable to the fact that, in most businesses, it is almost impossible to predict exactly the volume of sales in a forthcoming accounting period.

To illustrate this issue with an example, imagine that a restaurant budgeted \$8,000 for food costs in a period when it was estimated that 1,200 covers would be sold. If the restaurant actually incurred food costs of \$8,400 and 1,320 covers were sold, is it reasonable to conclude there has been poor food cost management? A static budget would highlight that the cost of food for the period was \$400 over budget ($\$8,000 - \$8,400$). This suggestion of poor food cost management is highly misleading, however. Food costs are variable (they increase in line with the volume of sales achieved), therefore we need to recognise the impact of the restaurant selling more covers than anticipated. In reality, the restaurant has been 10 per cent busier than anticipated ($[(1,320 - 1,200) \div 1,200 \times 100]$), yet food costs are only 5 per cent above budget ($[(\$8,400 - \$8,000) \div \$8,000 \times 100]$). To overcome this problem of potentially misleading variances that can arise when using static budgets, we can prepare a flexible budget.

Flexible budgeting can be achieved by preparing a series of budgets for different levels of sales activity. More usually, however, once the actual volume of sales is known, the static budget can be proportionately “flexed” up (if the actual volume of sales is above the budgeted amount), or down (if the actual volume of sales is below the budgeted amount). The resulting flexible budget will show what costs and revenues should have been for the actual level of activity achieved. Any unfavourable cost variances between actual performance and the flexible budget will be attributable to inefficient use of resources (e.g., labour or material inefficiencies, etc.) or purchasing resources at prices above what was estimated when the budget was originally set.

Exhibit 10.1 provides an illustration of a flexible budget and also the computation of flexible budget variances. To understand how the flexible budget was prepared, initially focus on the first two data columns, i.e., the actual and static budget information. As the 1,800 actual room sales achieved are 90 per cent of the 2,000 room sales projected when the static budget was prepared, the flexible budget is set at 90 per cent of the static budget. This signifies that all budget items that move with sales volume (i.e., revenue and variable costs) are recorded in the flexible budget at 90 per cent of the amounts in the static budget.¹ Fixed costs in the

¹ Alternatively, the unit price or cost for each line of the static budget could have been determined. These amounts could then be multiplied by the actual sales volume achieved to derive the flexible budget amount. For example, the unit price of sales in the static budget must be \$110, as \$220,000 revenue was budgeted for 2,000 rooms sold. Multiplying \$110 by the actual activity level, i.e., 1,800 rooms sold, we find that the budgeted revenue to be included in the flexible budget is \$198,000 ($\$110 \times 1,800$).

flexible budget are unaltered from the value in the static budget as fixed costs are assumed to be unaffected by varying levels of activity. Once the flexible budget has been prepared, the flexible budget variances for each line can be determined by calculating the difference between the actual results and the flexible budget amounts (final column in [Exhibit 10.1](#)). These variances are labelled “U” (unfavourable) if the direction of the variance carries a negative impact on the actual profit level relative to the budget, and “F” (favourable) if the direction of the variance carries a positive impact on the actual profit level relative to the budget.

Exhibit 10.1

The Poplars Hotel Rooms Department Flexible budget performance report – month ending 30th April 20X1

	Actual	Static Budget	Flexible Budget (90% of static budget)	Flexible Budget Variance*
Room sales	1,800	2,000	1,800	
	\$	\$	\$	\$
Revenue (sales)	207,000	220,000	198,000	9,000 (F)
Variable costs:				
Labour	12,015	12,000	10,800	1,215 (U)
Cleaning materials	<u>5,200</u>	<u>6,000</u>	<u>5,400</u>	<u>200 (F)</u>
Contribution margin	189,785	202,000	181,800	7,985 (F)
Fixed costs	<u>49,000</u>	<u>50,000</u>	<u>50,000</u>	<u>1,000 (F)</u>
Operating profit	<u>140,785</u>	<u>152,000</u>	<u>131,800</u>	<u>8,985 (F)</u>

* The difference between the actual and the flexible budget amounts.
U denotes unfavourable variances; F denotes favourable variances.

The following observations can be made with respect to this flexible budget performance report:

- The \$9,000 flexible budget revenue variance signifies that average actual room rates charged exceeded the budgeted room rate. If actual revenue is compared to the revenue in the static budget, we find an unfavourable variance of \$13,000 (\$220,000 – \$207,000). This variance stems primarily from the fact that the number of room sales is below the static budget and masks the fact that the average room rate achieved of \$115 ($\$207,000 \div 1,800$) compares favourably with the budgeted room rate of \$110 ($\$220,000 \div 2,000$). It could be that setting the average room rate above the budgeted room rate has contributed to the number of rooms sold being below budget.
- Variable labour costs have a \$1,215 unfavourable flexible budget variance. This signifies that the labour has performed inefficiently and/or labour’s actual hourly rate of pay is

Flexible budgeting and variance analysis

greater than what was budgeted for. It could be that in light of the static budget (2,000 room sales predicted), more than the required amount of staff were rostered. The extent of labour's unfavourable performance is not highlighted if the actual performance is compared to the static budget, as this reveals only a small \$15 unfavourable variance.

- The cleaning materials have a \$200 favourable flexible budget variance. This signifies that the materials have been used efficiently and/or they have been purchased at an average price below the budgeted price.
- As noted above, fixed costs are not "flexed" when producing a flexible budget. This is because they do not vary with levels of activity over the short term. The \$1,000 favourable fixed cost variance signifies that fixed cost activities have been conducted efficiently and/or items have been bought for prices below what was budgeted for. As staff salaries can represent a significant proportion of fixed costs, it might be that annual salary rates of pay are below what was budgeted for, or a salaried position was vacant for some of the month.
- Overall, there is a favourable flexible budget operating profit variance of \$8,985. The primary factor driving this favourable variance is the \$9,000 favourable flexible budget revenue variance (rooms sold on average at a rate that is above the budgeted rate).

3) Variance analysis

We have just seen that a cost's variance between actual and flexible budget may be attributable to more than one factor. For example, the \$1,215 unfavourable flexible budget variance for labour in [Exhibit 10.1](#) could be due to inefficient labour performance and/or labour's actual hourly rate being above the budgeted hourly rate. In this section, we explore variance analysis, which is a technique that moves us closer to identifying the cause of a variance. The technique will be illustrated by considering it in the context of two specific types of cost variance: direct labour cost variance and direct materials variance. In addition, an approach that can be taken to analysing the variance between actual revenue and revenue identified in the static budget will be shown.

a) Direct labour variance

The variance between actual labour cost and labour cost in the flexible budget comprises two main elements: the labour rate variance and labour efficiency variance. A labour rate variance arises when the actual wage rate differs to the budgeted wage rate. A labour efficiency variance results when more or less than the budgeted time is taken to complete a particular task.

Direct labour variance worked example: To illustrate the analysis of labour variance, we will return to the Poplars Hotel example presented in [Exhibit 10.1](#). We can see that in April the hotel was 200 rooms short of selling its budgeted target of 2,000 rooms. Imagine that the budgeted cost of labour was based on an anticipated \$10 per hour wage rate and an expectation that each room sold would generate 36 minutes of room cleaning work. In addition, assume accounting records indicate that in April labour worked 1,350 hours at a rate of \$8.90 per hour.

This provides us with enough information to determine Poplars' labour rate and efficiency variances for April. We can take a systematic approach to calculating these variances by using the matrix presented as [Exhibit 10.2](#). A particular strength of this approach will become

evident as you progress through this section, as the same matrix format is used in all of the variance analyses described in this chapter.

Exhibit 10.2

Calculation of labour rate and efficiency variances

Actual labour hours	Actual labour hours	Budgeted labour hours
×	×	×
<u>Actual rate</u>	<u>Budgeted rate</u>	<u>Budgeted rate</u>
1,350	1,350	1,080
×	×	×
<u>\$8.90</u>	<u>\$10.00</u>	<u>\$10.00</u>
<u>\$12,015</u>	<u>\$13,500</u>	<u>\$10,800</u>
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>←————→</p> <p>\$1,485 Favourable labour rate variance</p> </div> <div style="text-align: center;"> <p>←————→</p> <p>\$2,700 Unfavourable labour efficiency variance</p> </div> </div>		
<p>←————→</p> <p>\$1,215 Labour unfavourable flexible budget variance</p>		

The matrix comprises three columns. In the first column we multiply actual hours worked by the actual hourly pay rate to give us the actual total cost of labour, i.e., $1,350 \times \$8.90 = \$12,015$. In the second column we make just one modification, replacing the actual rate of pay with the budgeted rate of pay to give us $1,350 \times \$10 = \$13,500$. Moving to the final column, we make one further change, replacing actual hours with the hours that it should have taken to complete the output achieved. As it was budgeted that each room sold should result in 36 minutes (0.6 hours) of direct labour and 1,800 rooms have been sold, we can conclude that 1,080 hours should have been worked ($0.6 \times 1,800$). The data compiled in column three provides us with the flexible budget for labour which is \$10,800 ($1,080 \times \10). It is important to note that only one change was made when we moved from column one to column two, and again when moving from column two to column three.

Now let us consider the nature of the information provided by the matrix. Moving from column one to column two we substituted budgeted rate of pay for actual rate of pay. This signifies that the difference between the totals of these two columns is attributable to a pay rate differential. Accordingly, the term “labour rate variance” is used to describe the \$1,485 variation between the first two columns. This is a favourable variance as the actual hourly pay rate is below the budgeted pay rate. When moving from column two to column three, we changed actual hours worked to the hours that should have been worked given the number of rooms sold. This signifies that any variation between these two columns arises due to labour’s level of efficiency. As we have found that actual labour time exceeds budgeted labour time, we conclude that the \$2,700 unfavourable variance has resulted from labour performing

inefficiently. Combining the \$1,485 favourable rate variance and the \$2,700 unfavourable efficiency variance gives us the \$1,215 unfavourable labour flexible budget variance noted earlier in [Exhibit 10.1](#). The significance of what this analysis reveals is discussed in financial decision making case 10.1 “The Rooms Division Manager and variance analysis”.

FINANCIAL DECISION MAKING IN ACTION CASE 10.1

The Rooms Division Manager and variance analysis

The \$1,215 labour cost flexible budget variance is the largest cost variance identified in [Exhibit 10.1](#). We can expect that the rooms division manager would want to find out what lies behind this variance, not least because senior management is likely to hold him accountable for it.

Requesting a variance analysis such as that presented in [Exhibit 10.2](#) can be seen as representing a first step to securing a greater understanding of what lies behind the unfavourable flexible budget variance for labour. Once the rooms division manager sees that labour has been recruited at a rate below the budgeted rate, he may question whether this was due to the recruitment of untrained personnel. If it was, he may have determined a major factor that has contributed to the unfavourable labour efficiency variance and conclude that continued recruitment of untrained labour represents a false saving.

If the labour rate variance arose as a result of lower than expected labour rates established in a company-wide enterprise agreement, then it would be appropriate for the rooms division manager to regard the responsibility for the labour rate variance as resting with the department that was influential in formulating the enterprise agreement (most probably human resources). This is significant as it highlights how the variance analysis has enabled the rooms division manager to trace some of the responsibility for one of “his” variances to a manager in another department. If, however, the labour rate variance has resulted from the head of housekeeping deciding to recruit labour on a pay scale below the budgeted pay scale, then clearly the responsibility for the labour rate variance rests with housekeeping.

In light of the relatively large unfavourable labour efficiency variance uncovered by the variance analysis, the rooms division manager can be expected to want some explanations from the staff member in charge of housekeeping. It could be that the variance was due to an excessive number of staff rostered by human resources following the sales estimates fed into the budget by the marketing department (remember that the actual volume of sales was 10 per cent below the sales level projected in the static budget). If this was the case, it would again highlight how the variance analysis has enabled the rooms division manager to determine that a causal factor for the labour cost flexible budget variance lies largely beyond his control.

b) Direct material variance

The direct material variance comprises two elements: materials price variance and materials efficiency variance. The price variance shows the impact of not purchasing materials at the budgeted price. The efficiency variance shows the impact of not using the budgeted standard amount of materials to produce the actual volume of output achieved.

Direct material variance worked example: Imagine that a restaurant kitchen makes trays of lasagne and it has been determined that each tray should contain 0.5 kilograms of meat at a cost of \$5 per kilogram. Accounting records indicate that during last month, 1,000 trays of lasagne were produced and 600 kilograms of meat was used at a total cost of \$2,700.

The materials purchase price and materials efficiency variances can be calculated using a very similar approach to that taken in calculating the labour variances (as noted earlier, the beauty of this approach is that it can be used in a range of variance analyses). The direct material variance analysis is presented in [Exhibit 10.3](#). [Exhibit 10.3](#) parallels [Exhibit 10.2](#), the only differences are materials replace labour hours, and we talk of “price” rather than “rate” in connection with materials. Note how in both tables we calculate actual cost in the first column, in the second column we substitute budgeted price (rate) for actual price (rate), and in the final column we substitute budgeted materials (labour hours) for actual materials (labour hours). From the information provided, we can determine that the actual per kilogram cost of meat is \$4.50 (i.e., \$2,700 ÷ 600). In the interest of completeness, the actual per kilogram cost has been calculated and included in column one; however, it is not actually needed as the total actual cost of meat (i.e., the total for column one) was provided in the scenario information outlined above. It is again important to note that “budgeted amount of materials” in column three refers to the amount of materials that should have been used to produce the volume of output actually achieved.

Exhibit 10.3

Calculation of material price and efficiency variances

Actual amount of materials	Actual amount of materials	Budgeted amount of materials
×	×	×
<u>Actual price</u>	<u>Budgeted price</u>	<u>Budgeted price</u>
600 kgs	600 kgs	500 kgs
×	×	×
<u>\$4.50</u>	<u>\$5.00</u>	<u>\$5.00</u>
<u>\$2,700</u>	<u>\$3,000</u>	<u>\$2,500</u>
<div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div>		
<div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div>		
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Flexible budgeting and variance analysis

From [Exhibit 10.3](#) it can be seen that a \$300 difference appears between columns one and two. As actual price in column one is replaced by budgeted price in column two, it is evident that this \$300 difference is attributable to the material's price. The actual price is less than the budgeted price so the materials price variance is favourable.

There is a \$500 difference between columns two and three. As the only difference between these columns relates to the amount of materials actually used and the amount of materials that should have been used to produce the 1,000 lasagne trays, this variance is referred to as the "materials efficiency variance". The actual amount of materials used was above the amount that should have been used, therefore this variance is unfavourable.

Upon further investigation, we might find that the quality of the meat purchased was below the normal standard and that this has resulted in the favourable price variance. If this were the case, the low quality meat might in turn account for the unfavourable efficiency variance, due to a larger than normal proportion of meat being discarded. The restaurant official responsible for food purchasing should be held accountable for the price variance. This could be the chef, or if the restaurant is in a large hotel containing several other restaurants, it could be a purchasing manager. The chef that oversees the preparation of lasagne should be held accountable for the efficiency variance.

A potential problem can arise when one manager is held accountable for food purchasing and a different manager is held accountable for food preparation. In their pursuit of favourable price variances, there may be a tendency for purchasing managers to compromise on the quality of materials purchased. This will carry negative implications for those managers responsible for overseeing efficient use of materials, as a significant proportion of substandard materials may have to be scrapped. High scrap rates will increase the volume of materials used, and this will result in an unfavourable materials efficiency variance.

This scenario represents a good example of how accounting systems can provide incentives that counter the development of a team culture by placing managers in adversarial positions. If this type of problem becomes significant, an attempt can be made to introduce quality standards for meats purchased. Alternatively, if this is not workable, consideration can be given to moving the purchasing function under the control of the manager responsible for production (i.e., the chef in the lasagne example just outlined).

c) Revenue variance

Analysis of the variance between budgeted revenue and actual revenue can be applied to any of a hotel's sources of revenue (food and beverage, accommodation, etc.). In the following example, revenue variance analysis is illustrated in the context of a banquet department.

Revenue variance worked example: Imagine that for a hotel's most recent quarter, the banqueting department had budgeted to serve 9,500 guests at an average price of \$20 per person. From accounting records it has been determined that 8,000 guests were served at an average price of \$21 per person. From this information we can determine that there is an unfavourable revenue variance of \$22,000, i.e. $(8,000 \times \$21) - (9,500 \times \$20)$. However, two underlying revenue variances can be uncovered by again applying the matrix that was used in the labour and materials variance analyses. The analysis of revenue variance is presented in [Exhibit 10.4](#) which shows how the selling price and the sales volume variance can be isolated from one another.

Exhibit 10.4**Calculation of the selling price and sales volume variances**

Actual volume of sales	Actual volume of sales	Budgeted sales volume
×	×	×
<u>Actual selling price</u>	<u>Budgeted selling price</u>	<u>Budgeted selling price</u>
8,000 guests	8,000 guests	9,500 guests
×	×	×
<u>\$21</u>	<u>\$20</u>	<u>\$20</u>
<u>\$168,000</u>	<u>\$160,000</u>	<u>\$190,000</u>
<div> <div> <div>←</div> <div>\$8,000 Favourable selling price variance</div> <div>→</div> </div> <div> <div>←</div> <div>\$30,000 Unfavourable sales volume variance</div> <div>→</div> </div> <div> <div>←</div> <div>\$22,000 Unfavourable revenue variance</div> <div>→</div> </div> </div>		

Determination of the selling price and sales volume variances may well increase the banqueting manager's understanding of factors behind the \$22,000 unfavourable revenue variance. Accountability for the two variances will depend on a hotel's organisational structure, as the scope of a banqueting manager's influence varies significantly across hotels. If the setting of banqueting prices and the marketing of banquets are influenced by different functional heads, care must be taken to recognise the degree of inter-dependency between these two aspects of a banqueting department's performance. For example, the setting of higher prices will likely result in a lower sales volume.

d) Other variance analyses

The materials, labour and revenue variance analyses just outlined can be regarded as three of the most widely used forms of variance analysis. They do not represent a complete listing, however, as there are other aspects of a hotel's performance that can be investigated using variance analysis. These other aspects include variable and fixed overheads, sales mix (e.g., the proportion of F&B to accommodation sales), market share and market size. All of these analyses can be conducted using a similar approach to that outlined above. The question of which variance analyses should be conducted can only be answered by appraising the nature and context of a particular hotel's business. If a hotel is located in a well defined market segment and significant resources are assigned to the maintenance and development of market share, a variance analysis of market share and size could be warranted. In such an analysis, the profit implication of a variance between actual and budgeted market size is isolated from the profit implication of actual market share varying from budgeted market share. While a detailed review of the techniques to be used in an extensive range of variance analyses is beyond the scope of this book, such reviews can be found in many advanced management accounting texts.

When should a variance warrant further investigation?

There is no hard generalisable rule with respect to when a variance is deserving of further investigation. Senior managers see the need to conduct further investigation of variances in the context of factors pertinent to a hotel at a particular time. A small unanticipated variance might warrant a senior manager's attention more than a larger anticipated variance. For items critical to a hotel's overall performance, a small variance might be viewed as important. For example, as room sales frequently affect the sales levels of other hotel activities, a small room sales volume variance might be significant. For other items, senior management might choose to follow up variances that are above a certain percentage of the budgeted amount, or above a certain dollar size. Obviously a 3 per cent variance in labour costs of \$30,000 may warrant greater scrutiny than a 10 per cent variance in miscellaneous costs of \$2,000. Consequently, rules such as "investigate all variances greater than \$4,000 or 10 per cent of budget" are frequently applied in practice.

4) Benchmarking

In variance analysis we are concerned with identifying underlying factors that account for differences between a hotel's actual performance and its budgeted performance. Widespread use of variance analysis clearly highlights the importance of the budget as a performance benchmark. Recent years have seen this benchmarking philosophy broadened to include non-budgetary and also non-financial benchmarks of performance. A significant non-financial benchmark that has been used extensively in the hospitality industry for many years is occupancy rate. This is a key performance indicator and some competing hotels have been observed to share their occupancy level information on a nightly basis.

For the many hotel managers that work in a large chain organisation, data provided by high performing hotels within the chain can provide a valuable performance benchmark. In fact the term "benchmarking" is frequently used in the sense of comparing to best practice. The hotel with the best performance for a given activity is the one that provides the standard for that activity. Such benchmarking can become a highly formalised process with high performing hotels sharing information on how their performance levels have been achieved. In order for such a benchmarking process to work, it is obviously important that consistent accounting methods and measures are used within each hotel. In addition, if it is important that managers in high performing hotels participate fully in the benchmarking process by sharing the secrets of their success, care must be taken not to attach significant management rewards to relative performance levels. If high rewards are attached to relative performance, managers in high performing units will be reluctant to share information that could improve the standing of low performers, as this would reduce the high performers' margin of superiority.

Benchmarking can also involve making comparisons with competitors. While such benchmarking might provide the basis for improved performance, competitor benchmarking is frequently compromised by the problems of accessing information and also inconsistent accounting practices applied across hotels (e.g., different depreciation methods, central administration cost allocation procedures, etc.). One way around this problem is to purchase industry average data compiled by organisations such as Dun and Bradstreet and large accounting firms such as PricewaterhouseCoopers. These companies collect data from hotels and produce aggregated hotel income and balance sheet statements and also key performance indices. The information is generally categorised according to three, four and five star properties and presented on a percentage basis, i.e., the reader can determine ratios such as cost of sales as a percentage of sales, labour costs as a percentage of sales, etc.

It is important to put the role of variance analysis and benchmarking into context. These approaches to performance monitoring represent little more than attention directing activities of the accounting function. Determining what course of action needs to be taken in light of observed discrepancies is an issue requiring managerial judgement. The importance of establishing an effective attention directing system should not be underestimated, however. Failure to detect a fire will always result in failure to put out a fire. The accounting system can frequently aid fire detection, but managerial judgement is required when determining how the fire is to be extinguished.

5) Summary

In this chapter we have reviewed flexible budgeting, variance analysis and benchmarking. Flexible budgeting involves adjusting the beginning of year budget in line with the actual volume of sales achieved. This approach is particularly justified when a large proportion of reported variances between actual and budgeted performance result from the challenging nature of correctly predicting sales volume. Flexible budgeting is also particularly pertinent in cost centres, as cost centre managers are not in a position to influence sales levels. Variance analysis is a technique that helps a manager identify underlying factors giving rise to variances. We saw how a systematic approach can be taken in variance analysis. In addition, the chapter described how managers are increasingly using the performance of other hotels as a benchmark when appraising their own hotel's performance.

Having read the chapter you should now know:

- how to produce a flexible budget and the merits of flexible budgeting,
- how a hotel manager can use variance analysis as a useful complement to budgetary controls,
- the role of benchmarking in performance management.

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Problems

Problem 10.1

Explain the difference between static and flexible budgets and describe the benefits associated with using a flexible budget system, as opposed to a static budget system.

Problem 10.2

Imagine you are the F&B manager in a hotel that has recently employed a new chef. The chef has not been exposed to variance analysis before and has approached you in connection with the kitchen's most recent performance report that reflects the following:

Unfavourable materials price variance: \$1,200
 Favourable materials efficiency variance: \$800
 Unfavourable materials flexible budget variance: \$400.

Required:

Develop an explanation for the chef that describes what each of the variances mean.

Problem 10.3

Karen Brady, the general manager of the Curbside Motor Lodge in Central England, has approached you for advice in connection with her most recent quarterly performance report. The summarised version of the report is as follows:

The Curbside Motor Lodge Financial Performance Report For the Quarter Ended 30th September 20X1			
	Actual	Budget	Variance
Room nights sold	12,420	10,800	
	£	£	£
Sales revenue	1,179,900	1,080,000	99,900 (F)
Variable costs:			
Labour	84,456	75,600	8,856 (U)
Room amenities	<u>5,216</u>	<u>5,400</u>	<u>184 (F)</u>
Contribution margin	1,090,228	999,000	91,228 (F)
Fixed costs	<u>241,000</u>	<u>235,000</u>	<u>6,000 (U)</u>
Operating profit	<u>£ 849,228</u>	<u>£ 764,000</u>	<u>£ 85,228 (F)</u>

The lodge has produced this type of quarterly internal financial report for several years now. Karen has heard that some hospitality businesses are using flexible budgeting, a technique that she has not encountered before in her career. She is wondering what insights can derive from preparing flexible budgets and whether it is a technique that she should introduce at the lodge.

Required:

- Prepare a flexible budget for the Curbside Motor Lodge for the quarter ending 30th September 20X1. Also record all flexible budget variances, and indicate whether they are favourable or unfavourable.
- In connection with the flexible budget performance report you have prepared for the Curbside Motor Lodge, prepare a brief statement for Karen Brady that summarises the benefits of flexible budgeting.

Problem 10.4

With respect to the previous problem concerned with the Curbside Motor Lodge, imagine you have conducted a detailed review of accounting records and found the following.

- The budgeted wage rate was £14 per hour and the budgeted allowance for cleaning rooms was half an hour per room night sold. The actual average wage rate paid was £15 per hour and 5,630.40 hours were worked cleaning rooms in the quarter ended 30th September 20X1.
- Room amenities were provided in guest bathrooms in small transparent plastic packs comprising shampoo, conditioner and a bar of soap. The lodge budgeted on each amenity pack costing £0.50 and the provision of one amenity pack per room night sold. It appears, however, that the rate of one pack per room night was exceeded as 13,040 amenity packs were issued from stock during the quarter. These amenity packs actually cost £0.40 each.

Required:

- Calculate the room cleaning labour rate and efficiency variances.
- Calculate the room amenity price and efficiency variances.
- Calculate the selling price and sales volume variances.

Problem 10.5

Tiff's Bordeaux restaurant serves breakfast, lunch and dinner. In June it was budgeted that 500 covers would be served. The budgeted revenue and variable cost per cover is presented in [Schedule 1](#) below. In addition, the restaurant manager budgeted that June's fixed costs would be €800.

Schedule 1: Tiff's Restaurant
June budgeted volume of covers, average revenue
and variable cost per cover served

	Covers served	Average revenue per cover	Variable cost per cover
Breakfast	100	€7	€2.5
Lunch	150	€14	€5.0
Dinner	250	€25	€10.0

Actual results achieved in June are detailed in [Schedule 2](#). Fixed costs actually incurred in June were €740.

Schedule 2: Tiff's Restaurant
June actual volume of covers served, average revenue
and variable cost per cover served

	Covers served	Average revenue per cover	Variable cost per cover
Breakfast	110	€6.9	€2.20
Lunch	100	€17.0	€5.40
Dinner	300	€22.0	€9.50

Flexible budgeting and variance analysis

Required:

- Produce a flexible budget performance schedule for June that presents the flexible budget revenue variances and also the flexible budget variable cost variances for each of the three restaurant sittings.
- Comment on any variances that might warrant further management investigation.

Problem 10.6

In the face of increasing local competition, the financial director of a large Canadian hotel complex convened a task force with the express purpose of identifying potential cost saving initiatives. One of the participants on the task force, the head of engineering, aired the view that water consumption in the complex had risen considerably over the last couple of years and that this had occurred during a time of increasing water rates. The head of engineering felt that, as a result of minimal real accountability in this area, little was being done to ensure efficient water usage. He recommended that the hotel's five restaurants should be separately metered in order to monitor water consumption and that an appropriate accounting analysis be made of performance with regards to water consumption. The task force agreed that this was an initiative worth pursuing. In the following month, all restaurants were metered for water consumption and monthly water expense budgets developed.

The "Niagra Falls" restaurant monthly water expense budget was set at \$600. This was set based on an estimated monthly consumption of 60,000 litres of water at a rate of \$10 per 1,000 litres. In formulating this budget it had been agreed that water can be viewed as a variable cost, i.e., when restaurant activity doubles, water consumption would double.

Niagra Falls' performance in the first month of "water accountability" was as follows:

Covers served:	10% above budget
Water consumed:	90,000 litres
Water cost per 1,000 litres:	\$9.50

Required:

- Calculate water price and efficiency variances for Niagra Falls in the first month of "water accountability".
- Who should be held accountable for the water efficiency variance, and who should be held accountable for the water price variance?

Problem 10.7

The kitchen of the Ambience Hotel in Australia's Gold Coast has developed a strong local reputation for its pastries. It sells the pastries to carefully chosen bakeries and also through one of its restaurant outlets. At the beginning of the current financial year, the hotel's management established the standard that it should take half an hour of labour time to produce 1 tray of pastries. It was also budgeted that labour should be paid at the rate of \$14 per hour.

At the end of January, the performance report for the kitchen revealed that 120 hours had been worked by the pastry chefs. They were paid \$1,440 and had produced 220 trays of pastries.

Required:

- Calculate the labour rate and efficiency variances. Indicate whether each variance is favourable or unfavourable.

- (b) Comment on any adverse implications that may arise from a head chef paying particular attention on attaining favourable labour rate variances.

Problem 10.8

The kitchen of Sydney's Deluxe Hotel makes large meat pies for sale in one of the hotel's restaurants and also to a local meat pie retailer. It makes the pastry and also the meat sauce that goes into the pies. The budgeted direct cost of a pie is \$2.80, made up as follows:

0.5 kg of meat	\$1.50
100 grams of pastry	\$0.10
6 minutes of labour	<u>\$1.20</u>
Per unit budgeted standard direct cost	<u><u>\$2.80</u></u>

During June, 2,600 pies were made at the following cost:

1,400 kgs of meat used at a cost of:	\$3,990
270 kgs of pastry used at a cost of:	\$300
280 direct labour hours worked at a cost of:	\$4,060

Required:

- Calculate the meat price and efficiency variances. Indicate whether each variance is favourable or unfavourable.
- Calculate the pastry price and efficiency variances. Indicate whether each variance is favourable or unfavourable.
- Calculate the direct labour price and efficiency variances. Indicate whether each variance is favourable or unfavourable.
- Do you see any potential shortcomings arising if significant importance is attached to achieving favourable meat price variances?

Problem 10.9 *(this question draws partially on material covered in the previous chapter)*

Val Dizzy Air is a hotel complex located close to a ski hill near Queenstown, New Zealand. The town's population doubles during the skiing months of June through to October, and hotel activity also doubles during these months.

A new chief administration officer was hired one year ago as part of an initiative designed to increase the hotel's profitability. Among the new ideas introduced was responsibility accounting. This was formally announced in a memorandum accompanying quarterly cost reports supplied to department heads. Previously, cost data were presented to department heads infrequently. Excerpts from the announcement and the first cost report received by the supervisor of laundry services are presented below.

The new administrator constructed the annual budget for 20X3 and then divided it by four to facilitate the provision of quarterly feedback to the operating managers. The administrator considered establishing a budget according to an average of the prior three years' costs, hoping that installation of the system would reduce costs to this level. However, because of rapidly increasing prices, 20X2 costs, less 3 per cent, were finally chosen for the 20X3 budget. Activity

Flexible budgeting and variance analysis

levels were set at the volume achieved in 20X2, which was approximately equal to the volume in each of the previous two years.

Val Dizzy Air Hotel

MEMORANDUM

To: Supervisor, Laundry Department
From: Hotel Chief Administration Officer
Date: 15th October 20X3

As I indicated to you in our last department heads' meeting, I am introducing a quarterly performance reporting system. Please find your performance report for July, August and September attached.

Under this new system, all heads of department will receive quarterly reports, which will identify the costs of operating your department, your departmental budget and variations between your actual performance and budgeted performance. Highlighting variances in this manner will enable you to quickly identify aspects of your operation requiring immediate attention. As you know, I based this year's budget for costs by taking last year's performance less three percent. I believe this to be an appropriate basis for our budget setting as it is consistent with our hotel's philosophy of seeking continuous improvement. I trust we would all agree that there is always scope for improvement.

You will note from the report that your department's costs are significantly above budget (all items over budget are indicated by way of brackets in the variance column). I would be grateful if you could prepare a report for me outlining why these variances have occurred and also what remedial actions you plan to implement.

Val Dizzy Air Hotel

Laundry Department quarterly performance report 3 months to 30th September 20X3

	Actual	Budget	Variance	% Variance
Room occupancy days	9,600	8,000	(1,600)	(20%)
Kilograms of laundry processed	100,000	80,000	(20,000)	(25%)
	\$	\$	\$	
Cleaning products	944	800	(144)	(18%)
Laundry equipment electricity	605	500	(105)	(21%)
Labour	9,200	8,000	(1,200)	(15%)
Salaried supervision	2,995	3,000	5	0.2%
Laundry equipment depreciation	425	425	–	–
Facility maintenance	1,650	1,500	(150)	(10%)
Allocation of central administration overheads	<u>896</u>	<u>800</u>	<u>(96)</u>	(12%)
	<u>\$16,715</u>	<u>\$15,025</u>	<u>\$1,690</u>	

Required:

- (a) Describe two ways that the budget-setting exercise could be improved at the Val Dizzy Air Hotel. Your answer can refer to technical as well as behavioural aspects of budget setting.
- (b) Explain whether the report effectively communicates the level of efficiency of the laundry department.
- (c) Redesign the quarterly performance report so that it provides a more meaningful and fair appraisal of the performance of the supervisor of the laundry department.

Problem 10.10

The CornishChef restaurant is well known for its traditional Cornish pasties. The restaurant manager has introduced an incentive scheme that sees the restaurant's purchasing officer receive a bonus based on the amount of any favourable purchase price variances secured. The chef, in turn, also receives a bonus based on favourable material and labour efficiency variances associated with the preparation of Cornish pasties. The restaurant has established the following standards per tray of pasties produced:

Prime fillet steak (4 kilograms at £3 per kilogram):	£12 per tray of pasties
Labour (3 hours at £10 per hour):	£30 per tray of pasties

In the last month, the purchasing officer bought 924 kilograms of steak at £2.75 per kilogram. During this time, the 924 kilograms of meat was used and 682 hours were worked in the production of 220 trays of pasties.

Required:

- a) Calculate the meat price and efficiency variances. Indicate whether each variance is favourable or unfavourable.
- b) Calculate the labour efficiency variance and indicate if it is favourable.
- c) Identify any problems that could arise from using the materials price variance as the basis for providing a bonus to the purchasing officer.

Problem 10.11

The DecadentDaiquiri is a poolside bar at the BahamasBeach resort that specialises in mixing daiquiris. August's budget for the bar is based on the following projections:

Sales	9,000 daiquiris at \$7 selling price
Cost of sales	1 litre of rum costing \$18 per 20 daiquiris (most expensive ingredient used is rum)

The DecadentDaiquiri's actual performance for August was:

Sales	10,800 daiquiris sold at \$7.50 each
Cost of sales	515 one litre bottles of rum, each costing \$19, were used

Flexible budgeting and variance analysis

Required:

- a) Prepare a schedule showing the actual performance compared to budget for DecadentDaiquiri's revenue and cost of sales in August.
- b) Prepare a schedule showing the actual performance compared to a flexible budget for DecadentDaiquiri's revenue and cost of sales in August.
- c) Which provides a better basis for monitoring the performance of the DecadentDaiquiri manager: actual performance compared to budget or actual performance compared to flexible budget?
- d) Calculate the material price and efficiency variances for rum used in August.

Problem 10.12

Explain what is meant by “benchmarking” and how it can be used to improve performance.t.

Performance measurement

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. the fact that what gets measured in an organisation provides a powerful signal that will influence where and how managers will focus their work effort,
2. four shortcomings of financial performance measures,
3. 11 key issues to consider in performance measurement system design,
4. four dimensions of balance in performance measures,
5. the key features of a balanced scorecard performance measurement framework,
6. the four performance dimensions that structure the balanced scorecard,
7. the way a balanced scorecard is closely integrated with an organisation's strategy implementation,
8. the steps involved in establishing a balanced scorecard performance measurement system,
9. the types of performance measures that can be used in the context of hotel management.

1) Introduction

It is a widely cited adage that “what gets measured is what gets managed”. There appears to be considerable validity in this statement. Just consider the way you prioritise time in your approach to studying. How much effort do you put into an assignment that carries a mark that is to be included in your overall course grade compared to a homework problem that is not graded? Similarly, regardless of whether you feel that reading a particular chapter in this book might help you develop an important hospitality management skill, you are not likely to put as much effort into studying a particular chapter if your lecturer states that the chapter will not be assessed in your final exam. This reflection on the influence that performance measurement has on the way that you prioritise your study time should leave you with little doubt that we all tend to attach more importance to the things that get measured. This close association between what gets measured and what gets managed highlights the importance of carefully thinking through what should be measured in a hotel's performance measurement system.

There is an extra performance measurement challenge that arises in those hotels where the owner engages the services of a specialist hotel management company. Many large hotels operate in this manner, with a management contract struck between the hotel owner and a hotel operator. Traditionally, hotel management contracts have been drawn up in a manner that sees the hotel operating company paid a fee that is based on around 3 per cent of hotel gross revenue plus around 10 per cent of hotel operating profit (see Turner and Guilding [2010] for an elaboration of the nature of hotel contracts and some of the challenges arising). It is widely felt that as a result of the way the fee for a hotel operating company is determined, operators seek to maximise revenues and profit while hotel owners are more interested in maximising return on investment. The tension that can arise between a hotel operating company pursuing its goal and the hotel owner wanting pursuit of its goal highlights an additional complexity that heightens the importance of carefully designing performance measurement systems in hotels.

Accountants' views of the measures that can be included in a management accounting performance measurement system have broadened considerably since the 1980s. It was around this time that extensive debate took place in professional accounting circles with respect to widely perceived shortcomings in conventional management accounting systems. Much of this debate centred on the view that accounting systems had too much of a backward-looking orientation that focused primarily on measuring events that had already occurred. This suggests a situation of too much management by the "rear view mirror" and not enough by a forward-looking perspective. It was also felt that accounting systems had too much of an inward-looking tendency (predominantly focused on internal organisational performance factors such as cost control achievements), with little attention given to an organisation's external commercial environment. Associated with this discussion was a view that management accounting should develop more of a strategic orientation. This greater strategic orientation can be achieved by management accountants becoming more involved in the collection and analysis of information that can inform strategic decision making (e.g., performance-related information with a focus on customers, competitors, etc.). It can also be achieved by ensuring that accounting systems monitor aspects of business performance that can provide insight into whether a business is achieving its strategic objectives. For example, if a strategic objective of a hotel chain is to build its brand value, the hotel chain's accounting system could be designed to include a periodic measurement of its evolving brand value.

This chapter describes the major shortcomings associated with financial performance measures and provides an overview of the key issues to be considered when designing a performance measurement system. It also describes the balanced scorecard which is a performance measurement framework that has in recent years changed the way that many organisations are approaching performance measurement system design.

2) Shortcomings of conventional financial performance measures

It would be understandable for you to be thinking "Why have we got a chapter on performance measurement appearing in the latter part of this book when we've already covered an array of performance measures, e.g., sales, cost, profit, revenue per available room, ROI, residual income, etc?". The answer lies in the fact that while any hotel General Manager would be very correct in telling you that all these measures are exceedingly important and are

Shortcomings of conventional financial performance measures

used extensively to help manage a hotel efficiently and effectively, as a collection of measures they have several deficiencies. The shortcomings of financial performance measures are:

- a) **Financial performance measures focus on results not causes.** If a hotel's financial performance measurement system indicates a declining level of sales, we know that all is not well. We would not know, however, what factors account for this bad financial result. We would have no sense of what corrective action should be taken because the sales account represents a highly aggregated performance indicator and there are many factors that could account for a changed level of sales. As a coach of a losing soccer team, you would have little capability to turn the team around if the information you are provided with is limited to the final score of each game played. It is only by collecting further data that you are able to form an opinion as to whether attention should be directed to improving the team's fitness levels, the defenders' heading abilities and positional sense, the attackers' shooting levels, making a change in captaincy, or addressing some other factor that affects a team's success. Financial performance indicators can be likened to the final score of a sporting contest. If we note a declining sales level, we will need further information when deciding whether we should be seeking to improve staff motivation, generate greater brand recognition, generate higher service quality, or to take some other action designed to rectify the poor sales result. A broader-based performance measurement system will have a greater capacity to highlight factors that lie behind a declining level of sales.
- b) **Financial performance measures suffer from having a backward-looking orientation.** Financial performance measures tend to focus on performance in a specific period of time that is past. A more valuable performance measurement system is one that can provide pointers towards likely future performance. For instance, increasing levels of customer satisfaction suggests future strong performance due to an increase in return guests and positive word of mouth promotion. Similarly, improved employee morale points towards a likely reduction in future staff turnover and an increase in the care and quality of service provided.
- c) **Financial performance measures focus on a limited performance dimension.** Financial performance measures are obviously limited to measuring those things that can be measured in money terms. What of factors such as customer loyalty, employee morale and the quality of information systems support? Marketing managers in many hotels will tell you that customer loyalty is an exceedingly important factor contributing to a hotel's overall performance. The head of a hotel's human resource department will inform you that employee morale is very important, particularly as we are dealing with a business where customers come into close contact with many employees. Computers and information systems are integral components contributing to the effective operation of any large hotel (just consider the drastic implications of a one week failure in a hotel's computerised reservation system). Despite the undoubted importance of factors such as customer loyalty, staff morale and information system support, none of these performance aspects can be directly monitored using a financial measure.
- d) **Financial performance measures can promote short-term focused behaviour.** If managers focus too much on the short term, they may be taking steps that can damage a hotel's long-term success. This issue is a particularly apparent problem in the hotel industry because of the frequency with which General Managers (GMs) experience relocation within a hotel chain. In many chains, it is not unusual for a GM to average three years per property that they manage. If a hotel chain operates such a management policy and attaches major emphasis on financial performance indicators, there is an incentive for managers to take steps that will result in increasing levels of reported profit for the

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three years that they are based at a hotel, with limited concern given to the hotel's longer-term performance. This could mean that the GM cuts back on those financial outlays where no immediate downside is apparent. For example, a GM could reduce property preventative maintenance expenditure, cut back on staff development and training, and reduce expenditure associated with the hotel's local customer loyalty programme that was established by the preceding GM. All of these steps can be expected to result in an immediate cost saving. The negative implications of these expenditure cuts may not be felt until three years after their introduction. This signifies that the GM initiating the expenditure can appear to have performed well, due to the increased reported profit that coincides with the time he was GM. He might well look even better once he is replaced and the deferred negative implications of the steps he has taken start to be realised. His replacement GM can be expected to suffer decreased profitability, as the damage that was created three years earlier by the preceding GM has to be rectified, i.e., the reduced preventative expenditure may trigger a spate of mechanical failures, the reduction in staff training may cause disillusionment amongst ambitious staff who might then decide to leave the hotel and the disbanded customer loyalty programme may result in decreased sales to returning customers. At the root of this scenario is the fact that several years may elapse before the negative implications of certain cost-cutting measures are felt. The difference between the time when a managerial action is taken, and the time when the results of the action are felt, highlights a further shortcoming of financial performance measurement systems.

Despite these problems associated with financial performance measures, it is important that organisations continue to use financial performance measures. What is being suggested in this chapter is that financial performance measures should be used in a balanced manner, with an appropriate level of importance also attached to non-financial performance measures. Factors highlighting the importance of monitoring financial performance measures include:

- Financial performance measures are objective, i.e. the amount of sales revenue generated by an organisation can be objectively verified, however, considerable subjectivity is involved with non-financial measures such as gauging customer satisfaction.
- The external community (shareholders, etc.) attach considerable importance to the financial performance of organisations, as reflected in their published income statements and balance sheets. It is important that the criteria used by the external community to gauge an organisation's performance are closely monitored by an organisation's management.
- Bankruptcy occurs when an organisation does not have sufficient cash to pay off its liabilities. The fundamental importance of ensuring an organisation is not approaching bankruptcy underscores the importance of monitoring key current asset and liability accounts.

3) Key issues in performance measurement system design

When appraising the quality of a performance measurement system, or seeking to modify a performance measurement system, there are a range of issues that should be considered. Eleven key issues are described in this section and summarised in [Box 11.1](#).

Box 11.1

11 key issues in performance measurement system design

1) Ensure appropriate balance in the system

A performance measurement system should be well balanced by employing a mix of financial and non-financial, lag and lead, internal and external, and objective and subjective measures.

2) Avoid performance measurement information overload

Too many performance indicators can overwhelm a manager, distracting him from monitoring information that is critical to guiding hotel success. No manager should be held accountable for more than five measures.

3) Performance measures must be linked to mission and strategy

Performance measurement indicators should be chosen to ensure that managers focus their attention on facets of the business that are key to achieving a hotel's mission and strategy.

4) Report performance measures in a timely manner

To enable prompt action by management, performance indicators should be reported as soon as possible.

5) Be wary of performance measures that might trigger undesirable behaviour

If emphasis is to be attached to a room cleaning time measure, it will be important to also monitor quality of room cleaning, to avoid staff taking short cuts that reduce cleaning quality.

6) Keep performance measures simple

If staff do not understand how a performance measure is calculated, they will not know what steps to take in order to improve the dimension of performance captured by the measure.

7) Managers should only be held accountable for things they can affect

It is pointless to hold a manager accountable for a dimension of performance if the manager has limited ability to change what is being measured.

8) Emphasise positive dimensions of a performance measure

Take care to use performance measures that will motivate, and not demotivate, staff. As a result, it is better to talk of a glass as "half full" rather than "half empty".

9) Involve managers in any decision to change performance measures

Such involvement can lead to better designed performance measures and increase the probability of a manager striving to perform well on the business dimension appraised.

10) Provide performance measurement benchmark data

To raise awareness of which aspects of performance can be improved, use benchmark data to highlight what best performers in the sector are achieving.

11) Provide rewards for achieving performance measurement targets

To motivate staff, when a performance measure is met or surpassed, many companies provide a reward such as a cash bonus or a share allocation.

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The performance measurement system should be well balanced. There are four key balance dimensions that need to be considered:

1. *Financial vs non-financial measures.* Financial measures monitor aspects of hotel performance in monetary terms. Non-financial performance measures monitor aspects of hotel performance in non-monetary terms. It is unlikely that all of a hotel's key dimensions of performance can be measured in monetary terms (e.g., occupancy levels, customer satisfaction levels and staff turnover rates represent important non-monetary dimensions of performance that are monitored extensively in the hotel sector).
2. *Lag measures vs lead measures.* Lag measures monitor aspects of hotel performance that represent the outcome of actions already taken. Lead measures focus on measuring the actions or factors that drive outcomes. For example, occupancy and room cleaning injuries can be viewed as lag indicators. What drives these outcomes? Occupancy may be driven by customer loyalty and cleaning injuries may be driven by insufficient hours spent training staff. This signifies that customer loyalty and hours spent training staff are lead indicators. A focus on lead indicators can also help alert managers to what aspects of the business should be modified to take advantage of evolving opportunities.
3. *Internal measures vs external measures.* Internal measures focus on people and factors within a hotel organisation such as employees and internal hotel systems and procedures. External measures focus on people and factors outside the hotel organisation such as customers, shareholders, competitors and hotel quality rating agencies.
4. *Objective measures vs subjective measures.* Objective measures monitor aspects of hotel performance that can be measured with certainty. Subjective performance measures monitor aspects of hotel performance that cannot be gauged with certainty, e.g., if three consulting firms were asked to independently provide a percentage score reflecting the status of a hotel staff's morale, they would most likely each come up with a different score. We tend to feel more comfortable with objective performance indicators, as they are independently verifiable and there is no room for a dispute to arise over measurement accuracy. This preference for accurate and verifiable measurement can result in organisations placing undue emphasis on those aspects of performance that lend themselves to objective measurement. This tendency has to be resisted, however, as it is unlikely that all of a hotel's key dimensions of performance can be measured objectively.

Box 11.2 highlights these four distinct dimensions of balance that need to be considered when designing a performance measurement system. It also provides examples of performance measures that are characteristic of each distinct dimension. The fact that traditional accounting performance measurement systems tend to be rather incomplete and lopsided becomes particularly apparent when we see that they are skewed towards all the “balance dimension” characteristics listed on the left side of Box 11.2. Stated another way, **traditional accounting performance measurement systems** are restricted to **financial measures** that are **objectively measured**, tend to be **internally focused**, and **lag** behind the achievement of outcomes, i.e., they indicate outcomes already achieved but fail to measure aspects of performance that will drive future outcomes.

Box 11.2

Four dimensions of balance in performance measures

Financial measures e.g., cost, sales, gross profit, net profit, ROI, etc.	↔	Non-financial measures e.g., occupancy rates, weight of linen laundered, staff turnover, etc.
Lag measures e.g., revenue per employee, average duration of customer stay, sales per customer segment, return on equity, etc.	↔	Lead measures e.g., perceived quality of service, General Manager community involvement, per cent complaints resolved on first contact, etc.
Internal measures e.g., average years of employee service, staff turnover rate, service errors, inventory turnover, etc.	↔	External measures e.g., market share, brand perception, customer loyalty, share price, room rate relative to competition, etc.
Objective measures e.g., number of staff holding a degree, proportion of guests dining in-house, seat turnover, revenue per available room, etc.	↔	Subjective measures e.g., customer satisfaction, courtesy of F&B staff, accessibility of senior management, front of house cleanliness, quality of information systems, etc.

The performance measurement system should avoid information overload. Managers presented with too many performance measures can become distracted from aspects of performance that are key to a hotel's success. Design of an organisation's performance measurement system can be likened to the design of the instrumentation panel provided in a large plane's cockpit. Only so much information about a plane's status can be provided to a pilot before the pilot will suffer from information overload. We would all agree that it is important that pilots are provided with information to enable them to complete flights safely and efficiently. When selecting the indicators that should be included on a cockpit's instrumentation panel, it is important that a pilot can easily determine factors such as the plane's fuel level, its altitude, its speed, the location of other planes in close proximity, the status of wing flaps, etc. It is not necessary for the pilot to be updated every time that a passenger presses the service call button located on their seat armrest. This airline cockpit indicator panel design analogy is helpful as it highlights that in designing a plane, someone has to determine what things concerning the plane's status need to be updated to the pilot, i.e., what indicators should be included in the cockpit's instrumentation panel. When considering a hotel's performance measurement system, we need to isolate the key aspects of performance that warrant frequent monitoring by management. Senior management can be seen as equivalent to a plane's pilot and the monthly management performance reports are equivalent to the plane cockpit's instrumentation panel. Many management commentators feel that no manager should be held responsible for more than five measures.

The performance system should be linked to strategy and the organisation's mission. Recognise that in the plane cockpit instrumentation panel example, reference was made to the need for information that will enable the pilot to negotiate a safe and efficient flight. Completion of a flight safely and efficiently can be seen as a pilot's mission. While a pilot's mission might appear obvious, it is helpful to state it as we can then move on to consider what strategy the pilot should employ in order to achieve the mission. The likelihood of achieving the mission will be enhanced if the pilot employs a strategy of flying at an altitude that minimises the chances of a mid-air flight collision while seeking to minimise fuel consumption. The likelihood of achieving the mission will also be enhanced if the wing flaps are appropriately deployed to achieve a gentle and safe landing that minimises fuel consumption. It is important to recognise that it is only once we know our mission that we can think about what strategies should be employed. Stated at a very basic level, if you don't know where you are going, you can't determine what route to take. Once a strategy for achieving the mission has been determined, we can then turn to identifying what factors need to be monitored to support our pursuit of the strategy. As flying a plane at a certain altitude is an important strategy for the pilot, plane designers have determined that an altimeter should be included in a cockpit's instrumentation panel. Similarly, following recognition that appropriate deployment of wing flaps is important for the pilot, plane designers will, as a matter of course, include a wing flap status indicator in a plane cockpit's instrumentation panel.

Just as determining mission and then strategy is key when designing a plane cockpit's instrumentation panel, so determining a hotel's mission and strategy is key when determining the mix of measures to be used to monitor hotel performance. If a hotel restaurant's chosen strategy is to increase sales by encouraging more hotel guests to dine at the restaurant, to assist management's pursuit of this strategy, the performance measurement system will need to provide regular updates on the proportion of hotel guests dining at the restaurant. Linking performance measures to an organisation's strategy promotes **goal congruence** (i.e., ensuring that the goals of managers are consistent with the goals of the organisation).

If strict adherence to the principle of linking performance measures to strategy is not adhered to, some managers may unwittingly elect to use performance indicators that focus on aspects of a hotel that are not consistent with pursuing the chosen strategy. Imagine that a newly appointed restaurant manager has read [Chapter 5](#) of this book and is therefore aware of seat turnover as a possible restaurant performance indicator. He is keen to demonstrate his advanced hospitality training to the restaurant's staff and he tells them that he will be carefully monitoring seat turnover and staffing costs, two dimensions of performance that have not been emphasised in the restaurant in the past. Imagine also that senior management at the hotel has determined that the restaurant should be adopting a strategy that is consistent with developing a reputation for fine dining. Following the new manager's emphasis on seat turnover and staff cost minimisation, kitchen staff are pressured to prepare meals more quickly, and the number of waiting and kitchen staff working each shift is reduced. Three months following his job commencement, the manager calls a meeting of all restaurant staff and informs them that he is very pleased with their performance as seat turnover has been increased by 15 per cent and the cost of labour has decreased by 12 per cent. He dismisses grumbling from the kitchen staff that they are now so busy that their food preparation standards have slipped and also complaints from waiting staff that they are too busy to provide the type of attentive service that regular clients are used to. In the following week, the new restaurant manager confidently enters the hotel GM's office for his end of probationary period meeting. At the meeting's outset he draws the GM's attention to the increased seat turnover and reduced staff costs. The GM interrupts him and says that several of his friends feel that the restaurant's food and service quality has recently fallen. The GM

also informs the manager that two of the hotel's departmental managers have expressed concern that many hotel regulars have indicated that the restaurant is no longer their preferred place to eat. Following heated discussion, the hotel GM concludes the meeting by telling the restaurant manager that he is fired. The moral of the story is: proceed with care when choosing from the array of possible performance measures outlined in this book. Ensure that the performance measures that you select are consistent with the strategy of the hotel where you work!

Report performance measures in a timely manner. Performance measurement should be provided to staff as close as possible to the period of time that a measure relates to. Timely reporting signifies that measures have greater relevance for management decision making and enables staff to take early corrective action, if warranted. In the fired restaurant manager example just described, it was important that the General Manager received the information concerning the restaurant manager's undesirable performance as soon as possible. The longer the restaurant manager was in place, the more damage would be done to the restaurant's quest for a high quality dining reputation.

Carefully consider whether a proposed performance measure might trigger undesirable behaviour. Although linked to strategy, a performance measure might trigger behaviour that is not consistent with a measure's intent. A UK airport recognised that an important aspect of its performance is timely return of bags to passengers following flight arrival. Accordingly, it decided to measure the time taken for the first bag to be delivered from a flight arrival to the luggage pick-up carousel. Unfortunately, this measure resulted in a member of the baggage handling team being thrown one of the smaller bags from the storage hold of flight arrivals and then sprinting to place it on the luggage pick-up carousel. This focus on the first bag unloaded diverted the baggage handlers' attention away from the remaining bags, with the result that the average time for bags to be transported from arriving planes to the luggage pick-up carousel increased.

Performance measures should be simple to understand. Performance measures should be easy to communicate to staff and they should be easy to understand. Staff who are using, or are being held accountable to, a particular measure should have a complete understanding of how the measure is calculated. It is only with such understanding that they can determine what steps need to be taken in order to improve the particular aspect of performance that is gauged by the measure. To reinforce the importance of staff seeking to improve a particular dimension of performance, performance measures are sometimes presented graphically in prominent areas. For staff associated with a hotel's conference sales, management may determine that a graph indicating the number of conference delegate days sold per week during the current year should be prominently posted on a wall in the conference sales office area. It would be important that all staff in this area understand how conference delegate days sold per week is calculated. If 200 delegates attended conferences hosted by the hotel on 1st, 2nd and 3rd April, 150 delegates attended on 4th and 5th April and no delegates attended on 6th and 7th April, then the total number of conference delegate days sold in the week beginning 1st April would be 900.

Managers should only be held accountable for things they can affect. Ideally we would like to only hold managers accountable for dimensions of a hotel's activities over which they have complete control. It is a reality of organisational life, however, that seldom do managers have complete control over the outcomes of any particular aspect of a business. Care should therefore be taken to limit managers' accountability to those aspects of a business over which they have significant influence. A manager will justifiably become quickly frustrated if he is held to account for a business activity that he has limited capacity to affect. As an analogy, students frequently express dissatisfaction when some of their course mark is affected by the mark

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given for a group assignment. This stems from highly motivated students experiencing a limited ability to control the quality of the submitted assignment, due to the views and actions of other group members.

Emphasise the positive dimensions of a performance measure. In an effort to motivate and avoid demotivating staff, performance measures should be stated in a positive, not a negative, manner. For example, with respect to the rooms division, it is better to talk of an 80 per cent occupancy rate rather than a 20 per cent vacancy rate. Similarly, with respect to the banquet department, it is better to talk of a client's 75 per cent satisfaction rating rather than a 25 per cent dissatisfaction rating.

Seek manager involvement if changing a performance measure. It was noted in [Chapter 9](#) that benefits can arise from involving managers when their budget targets are being set. Similarly, consideration should be given to involving staff in any decision to modify the performance measures that they are held accountable for. Advantages arising from such involvement include:

- a) It can result in a more appropriate performance measure, e.g., a manager working in a hotel's engineering department may well have a better appreciation of which aspects of his job's performance should be measured because of his familiarity with the position and also because of knowledge gained from being a member of a professional body of engineers.
- b) Greater participation in establishing performance measures will likely increase the chances of managers viewing the measures as fair and appropriate. This will in turn enhance the chances of them feeling greater commitment to achieving a particular performance measurement target and reduce the chances of them viewing the measure in a cynical manner.

Provide performance measurement benchmark data. As noted in [Chapter 10](#), it can be very enlightening for managers to be provided with benchmark data that reflect standards achieved in high performing departments in hotels. For those hotels operating within a chain, benchmark data for sister properties can be secured relatively easily. Alternatively, hotel industry average data is compiled and available from a range of organisations such as Horwath, PricewaterhouseCoopers and Dun & Bradstreet.

Provide rewards for the achievement of performance measurement targets. In addition to their base salary, staff can be provided with a bonus if they achieve or surpass a performance target. While such incentive pay schemes were initially introduced for middle and senior managers, since the 1990s, such schemes have been broadened to include employees at a range of organisational levels. Operational staff members' rewards for performance tend to be in the form of a cash bonus or gift certificate. Many senior managers receive a substantial portion of their total remuneration by way of profit sharing plans that involve the allocation of company shares in line with their relative performance level.

4) The balanced scorecard

Growing concern over the tendency of accounting systems to be inadequately balanced and insufficiently linked to corporate strategy provided the context for the evolution of the balanced scorecard. The balanced scorecard has become popular with many business consultants and has been applied in many organisations since it was developed by Kaplan and Norton (1996). The evolution of the balanced scorecard has been significant as, although many organisations may not apply it in a formalised manner, it has commanded enough

attention in the accounting profession to affect the way accountants approach performance measurement design. Following your reading of this chapter, you might feel that a comprehensive balanced scorecard framework is not appropriate for the hotel where you work. Despite this, an awareness of the basic balanced scorecard framework will provide you with a valuable template to draw on when modifying a hotel's performance measurement system.

The "balanced scorecard" derives its name primarily from the way it provides a structured focus across four key distinct organisational performance dimensions: financial, customer, internal processes and learning and growth. While the balanced scorecard's focus on these four distinct perspectives probably represents its most notable feature, its other key features include its close integration with organisational strategy and the coherence it achieves from building performance measurement cause-effect linkages. A further characteristic of the balanced scorecard is that strategic performance measures developed for use at senior management levels need to be translated into more detailed operational performance measures for lower organisational levels. The multi-faceted nature of the balanced scorecard is summarised in [Box 11.3](#).

Box 11.3

Key features of the balanced scorecard (BSC) framework

1	The framework is structured around four key performance dimensions	→	Need to develop strategic objectives and performance measures for each of the following key performance dimensions: 1) Financial 2) Customer 3) Internal processes 4) Learning and growth
2	Strategy-based framework	→	The BSC engineers: • clarification of strategy; • articulation of strategic objectives for each of the four key performance dimensions; • strategy implementation by focusing staff on performance measures that are linked to strategic objectives.
3	Cause-effect integrated framework of performance measures	→	Each BSC performance measure sits within a cause-effect network that flows from learning and growth performance measures through to financial outcomes
4	Performance measures used at senior levels are translated into performance measures to be used at lower organisational levels	→	Strategic performance measures need to be translated into more narrowly defined performance measures that tend to be stated in non-financial operational terms for lower level staff (e.g., cleaning material inventory turnover)

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The underlying diversity of the activities conducted in a hotel that were described in [Chapter 1](#) (i.e., the service orientation evident in the provision of accommodation, the retail orientation evident in bar sales and the production orientation evident in restaurant kitchens) requires the development and application of a suite of performance measures that move well beyond traditional financial performance measurement. It is for this reason that a hotel appears to be a particularly appropriate setting for applying a coordinated broad-based performance measurement approach such as the balanced scorecard.

The first step in developing a balanced scorecard involves determining an organisation's mission or vision. A mission statement outlines the organisation's core purpose. As an example, the stated mission of the Marriott hotel group is to "Make people away from home feel that they are among friends and are really wanted". Following mission identification, we then need to determine what strategy will be employed to achieve the mission (i.e., once we know what we are trying to achieve, we then need to determine how are we going to achieve it). Marriott's strategy would likely include words highlighting the importance of staff providing a friendly service. Once strategy has been determined, we then need to translate the strategy into specific strategic objectives. A strategic objective that could have been set by the Marriott group is for their staff to be regarded as among the most friendly in the hotel sector. Following identification of strategic objectives, we can then turn to determining performance measures that should be monitored to promote pursuit of the objectives. If a strategic objective is for staff to be regarded as among the most friendly, appropriate performance measures could include: hours spent training staff on polite and friendly customer engagement, customer survey ratings with respect to perceived friendliness of staff, and staff's self assessment ratings of satisfaction resulting from customer engagement. This represents a slightly simplified overview of how mission and strategy is engineered into a balanced scorecard, as strategic objectives and performance measures would need to be developed for each of the four balanced scorecard key perspectives (i.e., financial, customer, internal business process, and learning and growth). The relationship between mission, strategy, strategic objective formulation and balanced scorecard performance measurement design is depicted in [Figure 11.1](#).

The balanced scorecard's four key performance dimensions

Financial perspective

The financial perspective comprises strategic objectives that are developed from a shareholder's perspective. Kaplan and Norton suggest these objectives can be developed by responding to the question: *To succeed financially, how should we appear to our shareholders?* Once these objectives have been developed, a set of financial measures can be generated. Many possible financial measures have already been extensively discussed in this book, e.g., departmental cost, cost of providing a room night, hotel profit, profit of a market segment, revenue per available room, ROI, share price, etc.

Customer perspective

The customer perspective comprises strategic objectives that are developed with the customer's standpoint in mind. Kaplan and Norton suggest these objectives can be developed by responding to the question: *To achieve our vision, how should we appear to our customers?* Once these objectives have been developed, a set of customer-related performance measures can be generated. Possible customer-related performance measures include: customer loyalty, proportion of returning customers, customer complaints, customer profitability, etc.

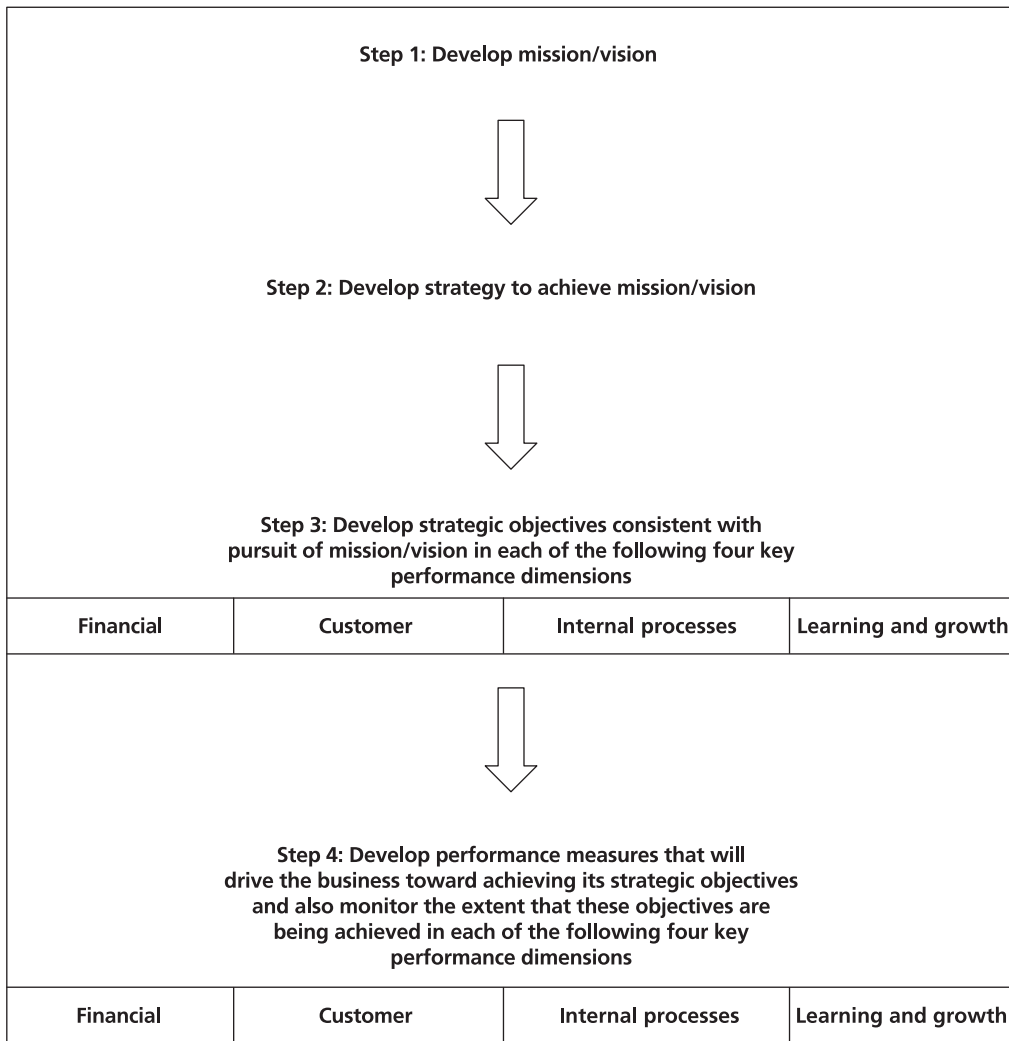


Figure 11.1 Overview of strategy-based balanced scorecard development

Internal process perspective

The internal process perspective concerns the development of process-related objectives that are consistent with achieving financial and customer objectives. Kaplan and Norton suggest these objectives can be developed by responding to the question: *To satisfy our shareholders and customers, what business processes must we excel at?* Once these objectives have been developed, a set of internal process-related performance measures can be generated. Possible internal process-related performance measures include: customer billing errors, time to process check ins, restaurant service errors, workplace safety compliance, community involvement, customer database availability, etc.

Learning and growth perspective

The learning and growth perspective concerns the development of organisational capability goals that are consistent with achieving financial and customer objectives. Kaplan and Norton suggest these objectives can be developed by responding to the question: *To achieve our vision, how will we sustain our ability to change and improve?* Once these objectives have been developed (which can focus on the short or long term), a set of learning and growth-related performance measures can be generated. Possible learning and growth performance measures include: training investment per employee, absenteeism, employee motivation index, employee satisfaction, proportion of staff with access to desktop computers, etc.

An overview of a hotel's balanced scorecard system's development is provided as Financial control in [action case 11.1](#). This overview distinguishes between lead and lag performance measures. This highlights the desirability of employing a balanced mix of lead and lag indicators. As already discussed, lead indicators focus attention on factors that affect whether a performance objective will be achieved. Lag indicators focus on the extent to which the performance objectives are being achieved. Financial measures tend to be lag indicators, customer measures provide a mix of lead and lag measures, while internal process and learning and growth measures tend to be lead indicators.

FINANCIAL CONTROL IN ACTION CASE 11.1

Senior management establishing a balanced scorecard performance measurement system

With the aid of an external management consultant, at its recent senior staff retreat, the senior management of the EconoRest chain developed a balanced scorecard framework. The following four steps were taken:

Step 1 (Mission determination): It was agreed that the corporate mission is to develop a large customer base that is loyal to a distinctive brand image, thereby enabling a strong financial return to be provided to EconoRest's shareholders.

Step 2 (Determining strategy to achieve mission): It was agreed that the distinct brand image would be based on the company's existing reputation for providing cheap accommodation and that a loyal and expanding customer base would be sought by maintaining a consistent quality standard.

Steps 3 and 4 (Strategic objectives and performance measurement determination): Strategic objectives consistent with pursuing the mission were developed and then performance measures were designed to ensure achievement of the strategic objectives. These are summarised below in a way that distinguishes between the key lead and lag indicators.

Objectives	Lag performance measures	Lead performance measures
1. Financial		
Improve profitability; Increase share price	Profit; Return on investment; Labour cost per room sold; Share price growth.	Trend in room average cleaning cost; Market share trend.
2. Customer		
High proportion of return customers	Proportion of returning customers; Average duration of customer relationship.	Customer satisfaction with price; Customer satisfaction with service consistency.
3. Internal processes		
Consistent service levels	Proportion of rooms meeting standard presentation (determined by random management checks); Per room cleaning time.	Customer database availability; Training procedures established and adhered to; Content of customer complaint letters.
4. Learning and growth		
Ensure staff know how to maintain consistent service provision	Staff turnover rates; Absenteeism.	Training hours per employee; Employee motivation index.

Cause-effect relationships in a balanced scorecard

A well-designed balanced scorecard will convert a strategic vision into an inter-connecting, cause and effect-related set of performance measures that direct managers towards the achievement of strategic objectives. Imagine we have decided to pursue a growth strategy for a restaurant and have determined that this will be measured by monitoring revenue growth in the *financial perspective*. If you believe that customer loyalty is key to the restaurant's revenue growth, you could choose to monitor customer loyalty in the *customer perspective*. You then determine that customer loyalty is determined by the restaurant's performance in varying its menu offerings, so you monitor the frequency of revised menu offerings in the *internal process perspective*. Following discussion with restaurant staff, you then establish that chef job satisfaction has a major bearing on the frequency of revised menu offerings, so you monitor chef job satisfaction in the *learning & growth perspective*. This brief scenario provides insight into how a well-conceived series of cause-effect linked measures can signify that improvements in learning and growth performance indicators will flow through to improved performance as measured by customer and internal process performance indicators and ultimately raise financial performance.

Translating senior management performance measures down the organisation

The balanced scorecard framework represents a coherent set of performance measures that are linked to strategic objectives and provide senior management with a comprehensive overview of an organisational unit such as a hotel. The strategic measures developed for use

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at senior levels need to be translated into more detailed operational performance measures focused on operations for lower management levels. In effect, a balanced scorecard has to be developed for every organisational level. To reinforce behaviour consistent with the pursuit of strategic objectives, each of these balanced scorecards has to be aligned to the balanced scorecard at the next level up the organisation chart. Lower-level scorecards will comprise performance measures that relate to specific lower level opportunities and challenges confronted. The alignment of a set of balanced scorecards running down an organisation can be usefully thought of as a series of “cascading balanced scorecards”.

Applying the balanced scorecard in a hotel context

Case 11.1 has already provided an overview of a hypothetical hotel developing a balanced scorecard. [Box 11.4](#) provides an overview of the performance measures considered for adoption by a US-based hotel chain when it adopted the balanced scorecard.

Box 11.4

Examples of hotel performance measures

Financial	Customer	Internal process	Learning & growth
<ul style="list-style-type: none">• Operating profit• Return on investment• Revenue growth• Revenue compared to budget• Sales mix• Pricing effectiveness• Operating profit compared to prior year• Operating profit compared to budget• Operating profit compared to comparable properties• Cost controls on individual line items	<ul style="list-style-type: none">• Customer satisfaction• Customer retention• New customer acquisition• Market segmentation• Market share• Customer profitability• Responsiveness• Service levels• Mystery-guest assessments	<ul style="list-style-type: none">• Service errors• Physical asset maintenance• Capital expenditure efficiency• Internal control practices• Safety compliance• Time required to complete processes (e.g., check in, room service, breakfast seating and serving, etc.)• Market segment information	<ul style="list-style-type: none">• Personal growth of staff• Internal promotion levels• Staff satisfaction• Staff retention• Staff empowerment• Strategic skills of staff• Training levels• Frequency of training• Training of staff for range of positions• Staff computer access• Community participation and knowledge exhibited by general managers

Based on the *White Lodging Services Case* (Denton and White, 2000)

Some of the benefits deriving from balanced scorecard implementation are usefully overviewed in Huckestein and Duboff's (1999) account of the Hilton Hotel group's adoption of the balanced scorecard. These balanced scorecard benefits include:

1. The balanced scorecard's adoption throughout the Hilton organisation promoted a more consistent business culture for the group. Such consistency is critically important in a business with many distinct operating units (hotels across the world) and a high rate of staff turnover.
2. The balanced scorecard focuses managers on the factors that drive short- and long-term success. Hilton's previous performance measurement system had been based primarily on financial performance which created a short-sighted management culture insufficiently linked to the group's customer-focused strategy.
3. The balanced scorecard has promoted more of a hotel-based teamwork philosophy, since greater importance is attached to whole of property achievements with respect to customer satisfaction.
4. The balanced scorecard makes the performance review exercise more objective. The need for senior managers to make subjective assessments when appraising a subordinate manager's performance is lessened due to team member accountability on mutually agreed, company-wide goals. The fact that performance measures are based on strategic objectives also increases team members' respect for the relevancy of the performance review process.
5. The balanced scorecard's group-wide application has greatly increased opportunities to use the achievements of best practice hotels as benchmark targets. A philosophy of sharing benchmark data greatly facilitates the dissemination of solutions to operational challenges.
6. Balanced scorecard implementation has promoted strategy information dissemination throughout the organisation, rather than having it trapped in the offices of a handful of senior managers.

Huckestein and Duboff (1999) warn that the challenges of implementing a balanced scorecard are considerable and that success is only achieved following unified commitment across an organisation. To achieve this requires a considerable concerted effort from senior management, together with on-going communication at all management levels of the organization. Despite the initial cost of introducing the balanced scorecard, Huckestein and Duboff claim that the longer-term benefits to the Hilton group far outweigh the time and resources that were consumed in the balanced scorecard's introduction. Further research highlights the wide variety of performance measures used in hotels and the fact that many hotels are using measures that relate to all of the four key performance dimensions on which the balanced scorecard is structured (Evans 2005).

5) Summary

Many chapters in this book provide insights into ways that a range of financial indicators (e.g., profit, revenue, ROI, etc.) can be used in performance measurement. This chapter has provided a focused account of issues surrounding performance measurement system design. The chapter commenced with the important observation that getting performance measurement systems "right" is critically significant. This is because what gets measured in an organisation provides a powerful signal that affects where and how managers will focus their work effort. Basically, "what gets measured is what gets managed".

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Having established the importance of the chapter's focus, an outline of four shortcomings associated with financial performance measures was provided, i.e., they focus on results not causes, have a backward-looking orientation, appraise a limited dimension of performance and can promote short-term focused behaviour. These shortcomings necessitate the development of an integrated performance measurement system comprising a carefully selected set of financial and non-financial performance measures. Eleven key issues that need to be borne in mind when developing such a system have been described.

The chapter then provided a description of the balanced scorecard which was developed by Kaplan and Norton (1996) as a result of perceived shortcomings in many organisations' performance measurement systems. The key features of a balanced scorecard are that it is structured according to four key performance dimensions, integrates with organisational strategy in a way that furthers strategy implementation, creates an integrated system of cause-effect related performance measures and translates performance measures used at senior levels into performance measures to be used at lower organisational levels.

It is useful to think of the balanced scorecard as a framework, because its focus on financial, customer, internal process and learning and growth performance dimensions, provides a template for identifying a breadth of key organisational activities and achievements that warrant measurement. This is similar to the way that a general knowledge test can be seen as a framework comprising a balanced set of questions that can be grouped according to maths, history, geography, science etc. Just as a general knowledge test would be judged deficient if it contained insufficient measures of maths ability, so an organisational performance measurement system can be judged deficient if it contains insufficient measures relating to financial, customer, internal process or learning and growth performance dimensions of a business.

In light of the balanced scorecard description provided in this chapter, it should be evident that it has many qualities in addition to being balanced. Given its range of attributes, a title that would be more reflective of all of the balanced scorecard's component elements would be the **strategy linked, hierarchically coordinated, cause-effect structured and balanced scorecard**. Such a title is not exactly snappy and does not roll off the tongue easily. The more succinct "balanced scorecard" title for Kaplan and Norton's (1996) performance measurement system has no doubt better supported the considerable interest that the framework has commanded since it was developed in the 1990s.

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Problems

Problem 11.1

How can an organisation justify spending considerable time and resources developing a performance measurement system?

Problem 11.2

Identify two distinctive challenges that arise when designing a hotel performance management system.

Problem 11.3

Identify four shortcomings of conventional financial performance measurement systems.

Problem 11.4

Although conventional financial performance measurement systems have shortcomings, identify three factors that highlight the importance of monitoring financial performance measures.

Problem 11.5

Describe six key issues that should be borne in mind when developing a performance measurement system.

Problem 11.6

Identify four key balance dimensions that need to be considered when designing a performance measurement system.

Problem 11.7

Briefly outline the key features of a balanced scorecard performance measurement system.

Problem 11.8

Identify four major steps to be taken in developing a balanced scorecard.

Problem 11.9

Describe the four key performance dimensions that form the basis of the balanced scorecard's structure.

Problem 11.10

For a hotel management setting, identify five possible performance measures under each of the balanced scorecard's four key performance dimensions (20 performance measures in total).

Problem 11.11

The ConferenceCha hotel chain operates a hotel in most large Indian cities and has determined that it will pursue a strategy of developing a national reputation for hosting conferences.

Required:

- a) Identify a set of strategic objectives appropriate for the ConferenceCha hotel chain. Structure the strategic objectives according to the balanced scorecard's four performance dimensions.
- b) Identify a set of performance measures for the ConferenceCha hotel chain that align with the strategic objectives you have identified in your solution to a). Structure the strategic objectives according to the balanced scorecard's four performance dimensions and also identify whether they are lead or lag performance measures.

Problem 11.12

The ClubEscape is an internationally recognised hotel resort chain that is seeking to expand its international footprint in exotic locations around the world. The chain pursues an all inclusive resort pricing concept whereby all meals and drinks are included in the accommodation price paid. Properties also provide a wide selection of sports and other activities that are also included in the price. The accommodation provided is relatively basic as it's not part of the resorts' signature experience which focuses on the range of activities offered, games, shows and good food. The ClubEscape experience is targeted at up-market vacationing families.

Required:

- a) Identify a set of strategic objectives appropriate for the ClubEscape hotel resort chain. Structure the strategic objectives according to the balanced scorecard's four performance dimensions.
- b) Identify a set of performance measures for the ClubEscape hotel resort chain that align with the strategic objectives you have identified in your solution to a). Structure the strategic objectives according to the balanced scorecard's four performance dimensions and also identify whether they are lead or lag performance measures.

Cost information and pricing

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. factors affecting pricing policy,
2. cost-based approaches to F&B pricing,
3. cost-based approaches to setting room rates,
4. the importance of variable cost in the context of short-term price setting.

1) Introduction

Pricing is an important and challenging aspect of hospitality decision making. The choice on restaurant menus highlight the number of meals that have to be priced, and a price differential frequently exists between lunchtime and dinner menus. With respect to accommodation, many hotels offer a range of rooms with different configurations. These different rooms have to be priced in busy as well as quiet seasons. These pricing decisions are made more challenging by the fact that it is rare to find two restaurant meals that represent exactly the same dining experience, and no two hotel stays constitute exactly the same accommodation experience. As a result, a hotel cannot conduct direct price comparisons to the same degree as companies operating in the retail sector. Supermarkets, for example, have a large volume of goods to price; however, they can conduct direct price comparisons with competing outlets that offer identical products.

The distinct nature of the various goods and services sold in the hospitality industry constitutes a further factor that complicates pricing. Compare the variable cost to revenue ratio for a room night sold with the variable cost to revenue ratio for a bottle of wine sold through a restaurant. The cost of selling one more room night (i.e., variable cost) is basically the cost of cleaning the room. The cost of selling one more bottle of wine in a restaurant is basically the cost of purchasing the bottle of wine. Cleaning a room might cost \$10 and rooms may have a rack rate of \$120, while the bottle of wine might cost \$20 and command a restaurant price of \$40. Note the large difference in the apparent percentage profit margin associated with these two sales. This apparent difference is misleading, however. In the cost data provided we have excluded reference to fixed costs. The ratio of fixed costs to variable costs is typically much

Cost information and pricing

higher for accommodation activities than F&B activities. It is frequently difficult to trace fixed costs to individual sales, however. As a result, a high price mark up over variable cost does not necessarily signify a high mark up over all costs.

This distinction between F&B and room pricing is particularly apparent when we consider the range of price discretion apparent in the two areas. [Exhibit 12.1](#) demonstrates how there is greater price discretion in the case of rooms. This greater price discretion arises because it is presumed that the hotel would, at a minimum, want to cover its variable cost. As variable cost represents a greater proportion of the selling price for the bottle of wine, an F&B manager is relatively constrained in terms of being able to discount the wine's selling price. Because of the significantly different cost structures in F&B and the rooms division, pricing issues arising in these two areas of hotel management are considered separately in this chapter.

Exhibit 12.1

Comparing price discretion for wine and a room night

Bottle of wine <i>Selling price: \$40</i>		Room night <i>Selling price: \$120</i>
Profit: \$10	Price discretion range (50% of selling price)	Profit: \$30
Fixed cost: \$10		Fixed cost: \$80
Variable cost: \$20	Price discretion range (92% of selling price)	Variable cost: \$10

If a hotel or restaurant has many local competitors, its volume of sales will be heavily affected by the prices it sets. A hotel that charges high room rates relative to its local competition will achieve lower occupancy levels than if it were to drop its room rates. This signifies that room managers are bound to be confronted by the need to manage the trade-off between a quest for achieving high room rates and maintaining high levels of occupancy. A parallel can also be noted with restaurant pricing. High pricing can be expected to result in reduced numbers of covers served.

When setting prices, managers obviously need to consider what prices are being charged by competitors. In addition, pricing needs to consider factors such as image sought and whether management believes that setting a low price for a particular service will result in more customers and greater sales of other services offered (i.e., using one service as a loss leader). These types of pricing considerations fall within the marketing domain of decision making. As marketing as well as costing issues impact on price setting, it is important to recognise at the

outset of this chapter that we are dealing with a complex decision making area. Any student of hospitality management who is seeking a simple “off the shelf” costing formula for supporting price decision making is bound to become frustrated. The complexity of the issues at hand preclude the application of any single “off the shelf” analytical procedure.

It might be stating the obvious to say that prices charged must cover costs incurred. Stating the obvious is important, however, as it highlights that we need to draw on the accounting information system in order to ascertain product and service costs as part of price decision making. In addition to a need to justify different prices charged for comparable services provided (e.g., different menu items provided by a restaurant, different sized rooms, etc.), it is a fundamental reality of commerce that prices must cover costs. Having said that, it should be noted that the hotel industry is characterised by a high proportion of fixed costs. Such costs are typically difficult to allocate across products and services. This factor probably signifies that compared to industries with lower fixed cost structures, the hospitality industry attaches less importance to cost analysis for pricing decisions. While it might be helpful to bear this factor in mind, we should nevertheless conduct as complete a cost analysis as is reasonably possible in order to maximise our ability to make well-informed pricing decisions.

The remainder of this chapter provides an overview of techniques that can be considered when attempting to draw on cost information for pricing decisions. The chapter is structured as follows. Initially, we will review two factors affecting price decision making. The following section outlines traditional costing perspectives on F&B pricing, room rate setting and also contribution pricing.

2) Factors affecting pricing

In this section, the manner in which the price elasticity of demand and product or service perishability affect pricing policies is described.

Price elasticity of demand

A highly price-elastic service is one where a change in price results in a relatively high change in demand for the service. A service with low price elasticity, on the other hand, is one where a change in price results in a relatively low change in the demand for the service. Higher degrees of price elasticity provide a potential for more imaginative approaches to pricing strategy. For example, if a particular hotel has found that room sales are highly price sensitive, decreasing room rates during the off season might represent an effective strategy to increase occupancy levels and total revenue. If, however, it has been found that room rates are relatively price inelastic, dropping the room rate might not be an appropriate strategy as it will not result in a significant increase in occupancy (if a hotel operates in a remote town with no competitors, relatively low price elasticity is likely to result).

A product or service is viewed as being price elastic if a percentage change in price results in a greater percentage change in demand. For example, imagine that a hotel has found that at a room rate of \$120 it maintains an average sales level of 500 room nights per week. In addition, it has also found that if it increases its room rate by 10 per cent to \$132, a 15 per cent reduction in demand will result, i.e., sales will drop to 425 room nights per week. As the percentage change in demand is greater than the percentage change in price the rooms can be described as price elastic. The price elasticity of demand is generally measured using the following formula:

$$\text{Price elasticity of demand} = \frac{\text{per cent change in quantity demanded}}{\text{per cent change in price}}$$

If this formula yields a value greater than 1, the demand is price elastic. If the formula yields a value less than 1, the demand is inelastic.

Most introductory micro economic texts provide a more detailed discussion of the nature of the price elasticity of demand. For the purposes of this text, it is important that hospitality management accounting students are aware of the concept of price elasticity, as it represents an important contextual consideration when determining a pricing strategy for a particular product or service. An examination of the role of the price elasticity of demand in the context of revenue management is provided in [Chapter 16](#).

Perishability of the product or service

Pricing strategies should take into account the degree to which a product or service is perishable. To illustrate the issue of perishability, let us compare a bottle of wine and a fresh cream cake that are available for purchase from a café that adjoins a hotel's foyer. While these two items are sold through the same cash register, a manager would be justified in implementing very different pricing strategies for the two products. Let us assume that the unit variable cost of making the cakes is \$1.20, and that immediately following production, the cakes are priced at \$4 each. Let us also assume that if a cake is not sold by the end of the day following its production, it will have to be discarded as waste. On the day following the cake's production, if the cake is not sold by the time the café closes, its revenue earning potential will be lost forever. Accordingly, a manager might be justified in dropping the retail price of the cakes to \$0.5 one hour before the café is due to close. Based on his experience, this results in most cakes selling and the manager justifies his action by saying:

If I didn't drop the price, none of the cakes would sell in the final hour of their life. Better to make a loss of \$0.70 per cake (\$1.20 variable cost – \$0.5 revenue) than the \$1.20 I've effectively lost when they're tossed in the bin. What would you prefer, \$0.5 or \$0 in the till for the cake?

The bottle of wine does not suffer from the same perishability as the cream cake. The closing of the café on a particular day does not signify that the future revenue potential of the bottle of wine is lost. Accordingly, the rationale for dropping the price of cream cakes to a point that is below their variable cost does not apply to the bottle of wine. This issue of perishability is particularly pertinent in the hospitality industry. Much of what is produced by a restaurant's kitchen is perishable. In addition, rooms and conference facilities can be viewed in a similar light. If, on a particular night, a room is not sold, the revenue earning potential of that particular room night has been lost forever. As the likelihood of this loss occurring increases as the time for the unsold room night approaches, so the incentive for dropping the price of the room increases. In a manner paralleling the cream cake example, it is better to gain some revenue rather than earn no room revenue for the room.

The room example differs in one key regard to the cream cake example, however. The room sale generates subsequent costs, i.e., the room will have to be cleaned. Therefore, unlike the cake example where earning some revenue was viewed as better than earning no revenue, in the room pricing situation the room rate should not be set below the variable cost of servicing the room. This difference arises as the sale of the cake does not generate subsequent costs.

This discussion of pricing perishable products and services needs to be placed in the context of marketing issues. Care must be taken when discounting items as they approach their time of expiry. Heavy price discounting can result in damaging a hotel's image. It can also result in customers, who are aware of the practice, deferring their purchase until after the discounted price is offered.

3) Traditionally applied pricing methods

In this section we initially consider food and beverage pricing issues. This is followed by a description of techniques relating to setting room rates. The section concludes with a discussion of contribution pricing, which concerns the significant nature of variable cost in short term pricing situations.

a) Food and beverage pricing

Cost-plus pricing is extensively applied in food and beverage management. The approach involves identifying costs traceable to the food or beverage item to be priced and marking the cost up by a multiple in order to determine a selling price. Compared to pricing meals on a restaurant menu, pricing beverages on a cost mark up basis is relatively straightforward. This is because beverages served frequently contain only one purchased ingredient, sometimes they contain two ingredients, but seldom more than three ingredients. The situation is very different, however, when costing meal items on a restaurant menu. Meals can comprise many ingredients and determining the cost and quantity of each ingredient used can be challenging. This is because some ingredients have a kitchen labour component, and some are subject to seasonal and daily cost fluctuations. For this reason, when determining the cost of a meal, it is common practice to restrict the costing exercise to the main ingredients used.

Cost-plus pricing of a particular menu item will be illustrated through the following worked example. Imagine that an analysis has been conducted to determine the cost of the ingredients in a fish dinner at Marseille's Poisson restaurant. This analysis has resulted in the preparation of the schedule presented as [Exhibit 12.2](#).

Exhibit 12.2

Poisson Restaurant – Cost of ingredients used in fish salad

Ingredient	€ Cost
Fish	2.00
Potato salad	0.18
Green salad (lettuce, tomato, etc.)	0.28
Rice	0.14
Bread roll and butter	<u>0.20</u>
Total	€ 2.80

Cost information and pricing

It will be assumed that the Poisson restaurant has a pricing strategy of marking up its ingredient costs by a multiple of 8. From [Exhibit 12.2](#) it is apparent that the ingredients in the fish salad have been estimated to cost €2.80. The price to be charged can be calculated as follows:

$$\text{Cost of meal ingredients} \times \text{“Cost plus” multiple} = \text{Price}$$

$$\text{i.e., } €2.80 \times 8 = €22.40$$

Because of marketing considerations such as customer attitudes to different price bands, prices charged by competitors for similar meals, etc., management is likely to round the “raw price” of €22.40 to a price that is consistent with its marketing strategy on pricing. For instance, the restaurant may have a strategy of setting its prices at 5 cents below the nearest round Euro. This would mean that the raw price calculated might be rounded down to €21.95 or rounded up to €22.95.

A variation on this pricing example might involve including only the main ingredient in the costing analysis. Such an approach might be justified on several grounds. Firstly, it would make the costing analysis easier. Secondly, the main ingredient accounts for the bulk of the total cost of all ingredients. Thirdly, it may well be that the main ingredient’s cost is more volatile than the other ingredients, with the result that changes in restaurant prices need to reflect changes in the cost of the main ingredient. If price is to be determined based on the main ingredient alone, clearly the “cost plus” multiple will have to be greater in order for the restaurant to earn the same level of gross profit for the meal. Returning to the example illustrated in [Exhibit 12.2](#), if the Poisson restaurant uses cost-plus pricing based on the main ingredient alone, it might use a multiple of 11. Applying this multiple to the cost of fish served provides the following raw price calculation:

$$\text{Cost of main ingredient} \times \text{cost plus multiple} = \text{Price}$$

$$\text{i.e., } €2.00 \times 11 = €22.00$$

The issue of applying a multiple to cost in order to determine a desired price raises an issue that frequently troubles students of accounting. A percentage mark up on cost is not the same as a gross profit margin percentage. The former concerns a percentage of cost while the latter concerns a percentage of selling price. This distinction can be illustrated through a simple example. Imagine a restaurant buys its house wine for \$16 per bottle and prices it on the menu at \$20. The cost mark up stated as a percentage is 25 per cent ($\$4 \div \16×100). However, gross profit margin as a percentage is 20 per cent ($\$4 \div \20×100). From this example it can be seen that if a service is being sold at a 24 per cent cost mark up, it is earning less profit than a service with a 20 per cent gross profit margin.

b) Setting room rates

A variety of cost-based approaches can be used to inform the setting of room rates. Three of these approaches are outlined here. Firstly, a rule of thumb approach known as the “rule of a thousand” can be utilised. Secondly, where a hotel has several differently sized rooms, room pricing can be based on room size. Thirdly, hotel management can determine the level of profit sought as a function of investment, and attempt to work back to the price that has to be charged in order to provide the required profit level.

Rule of a thousand approach to room rates

The rule of a thousand approach to setting room rates is outlined through a worked example in [Box 12.1](#).

Box 12.1**Rule of a thousand approach to setting room rates**

One broad sweep indicator of room pricing that has been referred to for many years in the industry is the “rule of a thousand”. This involves setting room prices at the rate of \$1 for every \$1,000 capital invested in a room. For example, assume that the total cost of building a 100-room hotel is \$15,000,000, and that 20 per cent of the infrastructure investment relates to non-accommodation hotel activities such as F&B. By spreading the \$12,000,000 invested in accommodation (80 per cent of \$15,000,000) across the 100 rooms we can determine the investment in each room to be \$120,000 ($\$12,000,000 \div 100$). Application of the \$1 charged for every \$1,000 invested formula would result in room rates being set at \$120 ($\$120,000 \div 1,000$).

This method should be regarded as a rather vague rule of thumb approach, as it fails to address key issues such as seasonality of demand and the time at which investment was made in competing hotels. If a manager in a hotel that was built prior to a period of high inflation in building costs applied the rule of a thousand when setting room rates, it is unlikely that a competing hotel built following the high inflation period could survive by also applying the same pricing strategy. If the second hotel were to apply the rule of a thousand, it would have higher rates and would lose much custom to its competitor.

Relative room size approach to setting room rates

The relative room size approach to pricing is explained via a worked example in [Box 12.2](#).

Box 12.2**Relative room size approach to pricing**

Imagine London’s Britannica hotel has 20 rooms that are 125 square meters and 40 rooms that are 100 square meters. Both types of room run at a 70 per cent occupancy level. The rooms manager is seeking a revenue of £1,474,200 for the 360 days that the hotel will be open next year. Based on room size, at what rate should the rooms be priced?

Note that the 20 large rooms are 25 per cent larger than the 40 small rooms, therefore, based on room size they will command a rate that is 25 per cent higher than that charged on the small rooms. The key to determining this problem is to determine how many square meters will be sold on

the average night, and then to determine at what rate each square meter must be charged in order to provide the desired level of revenue.

Total square meters that will be sold on the average night:

Number of rooms		Square meters		Occupancy		Total sq. meters sold	
20	x	125	x	.7	=	1,750	
40	x	100	x	.7	=	2,800	
						<u>4,550</u>	

Average revenue required per night is the target annual revenue divided by the number of days the hotel is open in the year:

$$£1,474,200 \div 360 = £4,095.$$

Rate to charge each square meter is the average revenue required per night divided by the total square meters sold:

$$£4,095 \div 4,550 = £0.9.$$

As each square meter needs to be charged at £0.9 per night, the 20 large rooms should have an average rate of £112.50 ($125 \times £0.9$), and the 40 smaller rooms should have an average rate of £90 ($100 \times £0.9$).

We can check to see whether this solution is correct by calculating whether it provides the £1,474,200 target annual revenue, i.e.:

Number of rooms		Occupancy		£ Rate		Annual operating days		Total £ revenue	
20	x	.7	x	112.50	x	360	=	567,000	
40	x	.7	x	90	x	360	=	907,200	
								<u>£1,474,200</u>	

Required rate of return approach to setting room rates

This approach involves determining what room rate must be charged to generate an annual revenue that is sufficient to cover all costs and taxes and, in addition, provide a sufficient level of profit to meet the owners' targeted return on investment. In the United States this approach is widely referred to as the "Hubbart formula". It is also sometimes referred to as the "bottom-up" approach to setting room rates as, once the owners' required rate of return has been determined (i.e., the hotel's net income which is on the last line of the income statement), the technique involves progressing up the elements referred to in the income statement, culminating in the term referred to on the first line of the statement, i.e., sales revenue. The technique will be illustrated through the following worked example.

Imagine that the ComfortAssured is a 180-room Winnipeg hotel with assets of \$10 million and liabilities of \$7 million. The hotel's owners are seeking a 14 per cent annual return on their investment. The hotel is subject to 40 per cent tax and pays 9 per cent interest on a loan of \$6.75 million. Other fixed costs, which include administration, depreciation and energy, total \$2 million per annum. The food and beverage department generates \$400,000 in profit prior to the deduction of fixed costs. The hotel projects an average occupancy of 65 per cent and is open 365 days a year, i.e., 42,705 room nights are sold per annum ($180 \times .65 \times 365$). The rooms department has estimated variable housekeeping costs of \$15 per room sold.

The calculations required to determine the average room rate required to provide the owners with their target ROI are shown in [Exhibit 12.3](#). As already noted, the key to understanding this schedule stems from an appreciation that it represents an upward movement through the hotel's income statement. This approach stems from the fact that in this schedule we are not seeking to calculate profit (which is the last line in a conventional income statement), instead we are determining the level of revenue (i.e., the first line in a conventional income statement) that is sufficient to provide a target profit level.

Exhibit 12.3

Using required rate of return to set room rates

Description of amount required	Calculation	\$ Amount
Net profit required to meet owners' target ROI	Owners' equity \times 14%: $(\$10,000,000 - \$7,000,000) \times .14$	420,000
Required pretax profit	Required profit \div (1 – tax rate): ^a $\$420,000 \div (1 - 0.4)$	700,000
Required profit before tax and interest	Add interest: $\$700,000 + (0.09 \times \$6,750,000) =$ $\$700,000 + \$607,500 = \$1,307,500$	1,307,500
Required profit before deduction of all fixed costs	Add fixed costs: $\$1,307,500 + \$2,000,000 = \$3,307,500$	3,307,500
Profit required from rooms	Deduct profits provided by other departments: $\$3,307,500 - \$400,000$	2,907,500
Total revenue required from rooms	Add variable housekeeping costs (rooms sold \times \$15): $(42,705 \times \$15) + \$2,907,500 =$ $\$640,575 + \$2,907,500 = \$3,548,075$	3,548,075
Required average room rate	Total revenue required from rooms \div number of rooms sold per annum: $\$3,548,075 \div 42,705$	\$83.08

a: See [Chapter 8](#) for a discussion of calculating a pre-tax amount

Cost information and pricing

The \$83.08 computed in [Exhibit 12.3](#) for the ComfortAssured Hotel can be used as a target average room rate, as it is sufficient to provide the owners' target ROI. If the hotel has a mixture of double and single rooms and management would like to charge a \$15 premium for the double rooms, we can determine what price should be charged for each type of room. Imagine that 60 of the ComfortAssured's 180 rooms are doubles and that both room types have an average occupancy of 65 per cent. This signifies that the hotel will sell an average of 39 double rooms per day (0.65×60), and 78 single rooms per day (0.65×120). The price to be charged for each room type can be determined by solving the following equation in which "p" represents the price to be charged for the single rooms and "p + 15" is the price to be charged in the double rooms.

Note that average required daily revenue from rooms =
\$9,720.75 (i.e., $\$3,548,075 \div 365$).

$$\begin{aligned}78p + 39(p + 15) &= 9,720.75 \\78p + 39p + 585 &= 9,720.75 \\117p &= 9,135.75 \\p &= 78.08\end{aligned}$$

Therefore singles should be priced at an average of \$78.08 and doubles should be priced at an average of \$93.08 ($\$78.08 + \15).

Other room rate issues

While the cost-based approaches outlined above can be seen to be helpful as a basis for setting room rates over the long term, in a short-term situation that sees a hotel experiencing low levels of occupancy, aggressive approaches to pricing may be justified. In such a situation, the hotel manager may want to know what is the lowest price that may be charged for a room. The description of contribution pricing presented in the next section will be helpful to the manager seeking the lowest room rates that are consistent with a sound commercial rationale.

Before considering contribution pricing, however, we should consider a final room rate setting concept relating to the maximisation of total room revenue across different market segments and also across busy and quiet seasons. To explore this idea further, let us return to the revpar (revenue per available room) concept which was introduced in [Chapter 5](#). Revpar concerns finding an optimal balance between maximising occupancy levels and average room rates charged. Obviously, higher occupancy levels can be achieved by reducing average room rates, and also vice versa. This factor underlines the relative incompleteness of the occupancy level measure and the average room rate measure as performance indicators. As is shown through the worked example in [Box 12.3](#), bringing the two measures together through the calculation of revpar results in a more complete measure of performance.

Box 12.3

Revpar: a comprehensive room sales performance measure

Which of the following outcomes represents the better marketing achievement for a Chicago 200-room hotel:

- a Tuesday night with an occupancy of 65 per cent and an average room rate of \$90, or
- a Wednesday night with an occupancy of 70 per cent and an average room rate of \$83 (assume Tuesdays and Wednesdays experience similar levels of demand for rooms)?

The fact that both occupancy and the average room rate measures provide only a partial picture of performance can be dealt with by multiplying them together to calculate revpar which provides a more complete picture of performance. Revpar indicates the average revenue earned by all rooms in the hotel, regardless of whether or not they are sold.

Occupancy night	Occupancy level		Average room rate		Revpar (revenue per available room)
Tuesday	0.65	×	\$90	=	\$58.50
Wednesday	0.70	×	\$83	=	\$58.10

It is evident that of the two results, an occupancy level of 65 per cent with an average room rate of \$90 is preferable as it provides a \$0.4 higher revpar. This signifies that the hotel earns \$80 more revenue (200 rooms × \$0.4) for the Tuesday night compared to the Wednesday night. Alternatively, this issue could be considered by comparing the total revenue provided under the two scenarios. The Tuesday night provides a total rooms revenue of \$11,700 (130 rooms × \$90). The Wednesday night provides \$11,620 revenue (140 rooms × \$83).

As a performance measure, revpar is preferred to total revenue as it facilitates benchmarking comparisons across hotels with different numbers of rooms. It should, however, be recognised that maximising revpar does not necessarily signify profit maximisation. In a situation of major room rate discounting, the higher revpar associated with an increase in occupancy could result in a lower level of overall profit if the increased total revenue does not outweigh the additional housekeeping and energy costs associated with the hotel's increased level of activity. Although increased costs for the rooms department result from increased levels of occupancy, there will also be increased F&B profit made from additional F&B sales resulting from the higher occupancy level. In addition, greater future profitability may result from favourable word of mouth promotion provided by the additional guests. All these factors need to be borne in mind when using a performance measurement system that attaches high importance to maximising revpar. When a hotel uses market segment demand data as part of an attempt to maximise revpar over the long term, it is generally described as practising revenue management. This approach to

pricing is commented upon in financial decision making in [action case 12.1](#) “The Sales and Marketing Manager and revenue management”. A much more detailed examination of the workings of “revenue management” is provided in [Chapter 16](#).

FINANCIAL DECISION MAKING IN ACTION CASE 12.1

The Sales and Marketing Manager and revenue management

The application of pricing strategies designed to maximise revpar is often referred to as “revenue management”. Revenue management involves sales and marketing management developing pricing plans that recognise factors such as whether a reservation pertains to a quiet or busy season, weekday or weekend and also the nature of a customer’s market segment (e.g., tour group booking vs a single transient guest).

The distinguishing feature of revenue management relates to its focus on maximising revpar rather than simply attempting to maximise occupancy levels. To illustrate revenue management’s approach to decision making, consider the case of a reservation office deliberating whether to make an advanced sale of rooms to a tour operator. The hotel has 200 rooms and charges \$80 per room for advanced bookings except for those placed by tour operators who are granted a 25 per cent discount. A tour operator wants to book 30 rooms for three nights in two months’ time. The hotel has already sold 170 of its rooms for the three-day period in question, and the sales department projects that if the sale is not made to the tour operator, 80 per cent of the remaining rooms will be sold to full rate paying guests. The reservations office can determine whether the sale should be made to the tour operator by comparing projected revenue with and without the tour operator booking.

Revenue per night if sale is made to tour operator

170 rooms sold at \$80	13,600
30 rooms sold at \$60	<u>1,800</u>
	<u>\$15,400</u>

Revenue per night if sale is not made to tour operator

194 rooms sold at \$80	<u>\$15,520</u>
------------------------	-----------------

As total revenue is greater if the sale is not made to the tour operator, the reservations office should not reserve rooms for the tour operator.

This represents a fairly simplified example. It does, however, highlight that as revenue management involves an attempt to match pricing to demand factors, its effectiveness is heavily reliant on the maintenance of a well-developed demand forecasting system. This is a key issue for hotels’ sales and marketing departments. It should be noted, however, that today revenue management is generally highly computerised. Revenue management computer software can track data such as: occupancy levels by market segment, the incidence of cancelled reservations, proportion of “no shows”, as well as revenue lost through high price customers being displaced by low price customers.

c) Contribution pricing

Contribution pricing is a particular type of cost plus pricing where a mark up is attached to a service or product's variable cost. While contribution pricing can be applied in the rooms, restaurant and bar areas, it will be explored here in the context of conference and banqueting operations. Applying contribution pricing in this area is particularly appropriate due to the fact that it is relatively easy to identify the variable costs associated with hosting conferences and banquets (i.e., the cost of additional refreshments and covers served). In addition, contribution management can provide a useful perspective on conference and banquet price decision making during periods of excess capacity (i.e., during a period of low demand for conferences).

Contribution pricing allows the conference manager to determine what is the lowest price that can be charged while ensuring a positive contribution towards profit results from hosting the conference. Such an aggressive pricing policy might be particularly pertinent during a period of excess capacity if any of the following applies:

- a) Competitors are very aggressively pricing their conference facilities,
- b) Hosting a conference results in the hotel increasing profits earned in other areas, e.g., the rooms and F&B departments,
- c) hosting a particular conference carries the potential of stimulating further conference sales in the future.

Box 12.4

Applying contribution pricing

Imagine a European conference organiser has approached a Munich hotel in connection with a proposed conference to be attended by approximately 200 delegates (the organiser estimates an attendance of not less than 150 and not more than 250 delegates). If a price quotation is being sought where the organiser has confirmed an attendance of exactly 200 attendees, the variable cost can be calculated at the level of the total conference as follows:

Variable cost for hosting conference with 200 attendees

	€
Morning refreshments (€1 per person × 200 attendees)	200
Lunch (€5 per person × 200 attendees)	1,000
Afternoon tea (€1 per person × 200 attendees)	200
Cost of 2 additional casual staff	<u>300</u>
Total variable cost for conference	<u>€1,700</u>

If, however, the conference organiser is seeking a quotation on a "per attendee" basis, the variable cost analysis would have to be modified, as the cost of additional casual staff does not vary according to the number of attendees (it is assumed that the two additional casual staff would be required regardless of whether there are 150 or 250 attendees). The cost of two casual

staff therefore represents an incremental cost of the conference, but a fixed cost in terms of the number of attendees.

Variable cost per attendee attending proposed conference

	€
Morning refreshments (€1 per person × 200 attendees)	1
Lunch (€5 per person × 200 attendees)	5
Afternoon tea (€1 per person × 200 attendees)	1
Total variable cost per attendee	€7

In variable costing, it is generally claimed that so long as a price is charged that exceeds variable cost, a positive contribution towards profit results. In this case, the variable cost analysis conducted at the “per attendee” level has resulted in the exclusion of casual labour. As the two additional casual staff represent an incremental cost of holding the conference, if pricing is based on the above “per attendee” analysis, an additional mark up would have to be included to cover the incremental cost of casual staff.

From the example in [Box 12.4](#), it is apparent that the unit of analysis affects the way that we look at variable cost (i.e., in this example we have conducted the analysis at the level of the whole conference as well as the individual attendee level). While this aggressive approach to pricing can be justified in the short term (in order to utilise capacity that would otherwise be idle), or on the basis of one or more of the three factors outlined above, it should be noted that it should not be viewed as a long-term pricing strategy. Over the long term, fixed as well as variable costs have to be covered if a profit is to result. Despite this, a justification could be made for running conferences at a price that results in a loss to the conference department, if increased conference activity has a positive impact on the hotel’s overall profitability due to increased F&B and room sales.

4) Summary

Due to the subject matter of this book, the pricing approaches outlined in this chapter have a financial orientation. As noted in the introduction, the provision of accurate financial information is imperative in a price sensitive industry such as the hospitality industry. This price sensitivity has doubtlessly resulted in some managers, uninformed by an appropriate financial analysis, setting prices below cost. The significance of cost information for pricing becomes particularly apparent when we recognise that setting prices below variable cost means that the more we sell, the more we lose. We should nevertheless remind ourselves that provision of costing information is only part of the management information required for well-informed pricing setting. Marketing factors, which can include issues such as competitor pricing, image sought, the possibility of loss-leader pricing etc., also need to be considered when formulating a pricing strategy.

In this chapter we have reviewed how factors such as perishability affect pricing policy. We have also seen how “cost plus” pricing approaches can be used in the context of F&B. Due to

the high fixed cost structure associated with the provision of accommodation, room pricing is slightly more complicated. Several approaches to setting room rates, including basing prices on room size and a required rate of return, were reviewed. In addition, the importance of revenue management was described in the context of a hotel's sales and marketing function.

Having read the chapter you should now know:

- the meaning of the price elasticity of demand and the significance of product and service perishability when approaching pricing decisions,
- how a “cost-plus” approach can be used in F&B pricing,
- how to apply the “rule of a thousand” when setting room rates,
- how to apply the “relative room size” approach to setting room rates,
- how to apply the required rate of return approach to setting room rates,
- what is meant by revenue management,
- the importance of maintaining a positive contribution margin (i.e., covering variable cost) when discounting prices.

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Problems

Problem 12.1

Describe the difference between a contribution pricing philosophy and a revenue management pricing philosophy.

Problem 12.2

- a) Using an example, explain what is meant by perishability when talking about a product or service.
- b) Why is perishability a key concept when approaching price making decisions?

Problem 12.3

Aberdeen's Thrifty hotel has 40 rooms and has historically achieved an average occupancy of 55 per cent. The hotel's assets have a book value of £450,000 and the owners believe the assets should generate a 15 per cent return after tax. Assume tax is charged at the rate of 50 per cent.

Cost information and pricing

The hotel has several fixed costs, these include 9 per cent interest charged on a £250,000 bank loan, £40,000 of equipment and fittings depreciation and other fixed costs of £65,000 per year.

The hotel's manager believes that the 55 per cent occupancy level will again be achieved next year, and estimates that this level of activity will result in £85,000 of operating expenses.

Required:

Assuming the hotel is open 365 days per year, calculate the room rate that should be charged in order to provide the owners with their target profit level.

Problem 12.4

The rooms manager of a new 90-room hotel in Texas has approached you seeking advice on what room rates should be charged. The hotel, which will be open for 365 days of the year, has the following three types of room:

Number of rooms	Type	Size
30	Economy	60 sq. meters
30	Double	80 sq. meters
30	Deluxe	110 sq. meters

The hotel's balance sheet indicates that \$18,000,000 has been invested in the building. Thirty per cent of the building is dedicated to non-accommodation activities such as F&B.

Required:

- According to the "rule of a thousand" approach (\$1 charge for each \$1 invested), what should be the average room rate charged.
- Assume the rooms manager projects that each room type will achieve a 70 per cent occupancy level. If the hotel is seeking to achieve a total revenue of \$3,066,000 from rooms next year and wishes to set room rates based on size, what rate should the hotel charge for each of its rooms?

Problem 12.5

The following information relates to a family-owned Adelaide restaurant:

Manager's salary:	\$55,000 p.a.
Interest:	Loan of \$100,000 is outstanding; 8 per cent annual interest rate.
Depreciation:	Equipment and furniture with book value of \$120,000 is being depreciated at 25 per cent of book value.
Licence:	\$5,000 p.a.
Insurance:	\$6,000 p.a.
Maintenance:	\$4,000 p.a.
Other salaries:	\$28,000 p.a.
Variable costs:	75 per cent of revenue
Before tax operating profit target:	50 per cent of owners' investment of \$120,000

Required:

- a) What sales revenue does the restaurant have to achieve in order to make its before tax operating profit target?
- b) The restaurant is closed for three weeks each year. In the remainder of the year (assume 49 weeks) it opens every day except Mondays. The restaurant has 50 seats, and averages a seat turnover of 2 times per day in the week and 3 times per day on Saturdays and Sundays. What must the average cover price be in order to achieve the target profit level?

Problem 12.6

The manager responsible for pricing merchandise in a souvenir shop located in the foyer of a hotel is discussing pricing strategy with a shop assistant. The two have agreed on a policy of aggressively pricing a specific set of items. When discussing pricing, the shop assistant is used to talking of marking up cost by a specific percentage. The manager, however, is more familiar with referring to “gross profit margin”, a term which tends to be used at management meetings in the hotel. The assistant has indicated that based on her experience in other merchandising situations, the minimum acceptable cost mark up is 25 per cent. Following discussions at the most recent monthly management meeting, the manager feels that a gross profit margin of 20 per cent is acceptable for loss leader items. The manager realises, however, that he is using a different terminology to that used by the assistant. As a result of this he has decided to phone the accounting department to clarify the difference between “per cent cost mark up” and “per cent gross profit margin”.

Required:

Through the use of a hypothetical example, demonstrate whether a 25 per cent cost mark up results in more profit than a 20 per cent gross profit margin.

Problem 12.7

Hamilton’s Carvery restaurant has had a Sunday seat turnover of 5 while charging \$40 per cover for its lunch to dinner “all you can eat roast” special. The chef is considering increasing the price of the special meal to \$45 and estimates that this will reduce the Sunday seat turnover to 4.5.

Required:

For the price change proposed, determine whether the “all you can eat” Sunday special is price elastic or inelastic.

Problem 12.8

Bristol’s Severn Bridge restaurant uses cost plus pricing as an aid to determining what prices to charge for its menu items. Identified below are the findings of a recent analysis of the cost of the ingredients used in a traditional roast beef dinner. The restaurant has a policy of marking up the cost of its ingredients by a multiple of 8.

Cost information and pricing

Ingredient	£ Cost
Beef	1.68
Potatoes	0.24
Carrots	0.16
Peas	0.14
Sprouts	0.20
Yorkshire pudding	<u>0.10</u>
Total	£2.52

Required:

- What price should the restaurant charge for the roast beef dinner if it wishes to achieve a mark up multiple of 8.
- The restaurant is considering taking a simpler approach to its mark up calculations of menu items. Under this simplified approach, only the main ingredient of each meal will be costed and price will be determined by using a revised cost mark up multiple. If the restaurant wishes to earn the same level of profitability from its roast beef dinner, what mark up multiple should it attach to the cost of the main ingredient?

Problem 12.9

Quebec's BonVivant hotel has 200 rooms. It sets its room rates according to a policy of charging \$120 per night to business clients and \$90 per night for group bookings. It has found that most guests stay for three nights. A manager is attempting to determine whether a four week advance reservation should be made for a group of 40 seeking accommodation on the nights of 20th, 21st and 22nd June. 80 rooms for these three nights have already been booked by business clients and past purchasing patterns suggest that, subject to availability, 90 per cent of the remaining 120 rooms will also be sold to business clients.

Required:

Determine whether it is in the hotel's interest to accept the group booking for the party of 40.

Problem 12.10

The 140-room PyramidsPlaza has just been constructed adjacent to the site of a forthcoming world Expo in Cairo. A significant return on investment is expected to be earned by the hotel once the Expo opens, however the General Manager is seeking to make a profit in the intervening years. The General Manager has estimated the following operating costs in the next year:

Variable operating costs	£6 per room sold
Fixed costs:	
Salaries and wages	£350,000
Maintenance	74,000
Other costs	<u>280,000</u>
Total fixed costs	<u>£704,000</u>

The General Manager believes that if rooms are priced in the range of £42 to £48, 32,000 room nights will be sold next year. All rooms are to be priced at the same rate. Capital invested in the hotel is £1,920,000 and the General Manager's target return on investment is 30 per cent.

Required:

- In order to achieve the 30 per cent target ROI, what price should be charged per room?
- If the room rate was to be set at £50 per night, how many nights accommodation would have to be sold in order to breakeven?

Problem 12.11

The 200-room Hotel PoshPlace is soon to open in Perth, Australia. It is projected that the hotel will be financed with a loan of \$6,000,000 at 12 per cent annual interest, and the owners will invest \$2,000,000. The owners will be seeking a 15 per cent annual return on their investment. The hotel will be open 365 days per year and it is expected that it will achieve a 70 per cent average occupancy. Hotel profits will be taxed at the rate of 40 per cent.

Hotel fixed costs are expected to be:

Insurance	\$180,000
Depreciation	200,000
Administration	150,000
Information systems	100,000
Human resources	50,000
Marketing expenses	140,000
Property maintenance	<u>200,000</u>
	<u>\$1,020,000</u>

It is estimated that the hotel's food and beverage department will generate an annual profit of \$150,000 and that variable room cleaning costs will be \$12 per room night sold.

Required:

Calculate the minimum average room rate that PoshPlace will need to charge in order to provide the hotel's owners with the 15 per cent return on their investment that they are seeking.

Problem 12.12

Explain what is meant by the "price elasticity of demand" and describe whether you would expect price elasticity to change during the year for a hotel that is subject to highly seasonal demand.

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Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. the manner in which cash budgeting represents an important tool in cash management,
2. the reasons profit is not the same as cash,
3. factors that need to be considered when extending credit to a customer,
4. the role of an accounts receivable aging schedule in credit management,
5. how the economic order quantity (EOQ) can inform purchasing decisions,
6. when to take advantage of a supplier's offer of a discount for early payment,
7. the risk/return trade-off apparent in short- vs. long-term financing of current assets.

1) Introduction

Working capital was defined in [Chapter 5](#) as current assets minus current liabilities. In this chapter we explore financial management issues relating to the main elements comprising current assets and current liabilities, i.e., cash, accounts receivable, inventory and accounts payable.

Initially, we will highlight the distinction between cash flow and profit. A clear understanding of this distinction is important. The immediate cause of bankruptcy is not a business's failure to make profit. Bankruptcy occurs when a firm does not have enough cash to honour liabilities that are due for payment. We will highlight this distinction between cash flow and profit by working through the mechanics of preparing a **cash budget**. The cash budget is particularly important as it predicts the timing of cash surpluses and deficits. Knowing when there will be a cash surplus allows investment plans to be formulated. Knowing the timing of a projected cash deficit allows short term borrowing arrangements to be made in advance of the cash shortfall occurring. Failure to predict the timing of cash shortfalls can result in costly borrowing arrangements, or, much worse, bankruptcy.

In connection with **accounts receivable management**, we will consider factors that need to be examined when deciding whether to extend credit to a customer. In addition, the nature and use of an accounts receivable aging schedule will be introduced. Following this, the economic order quantity (EOQ) which is a tool that can shed light on the optimal purchase order size for **inventory**, will be described.

In connection with **accounts payable management**, a technique enabling you to determine whether to accept a supplier's offer of a discount for early payment will be introduced. This technique is not only useful in accounts payable management, it also represents a fundamentally important analytical tool for any manager considering offering corporate customers a discount for early payment.

Finally, issues surrounding different approaches to financing a hotel's investment in current assets will be explored. We will see that a risk/return trade-off underlies the question of how much short-term, relative to long-term, borrowing should be undertaken. If a hotel uses a relatively high degree of short-term financing, it will be reducing its costs (i.e., increasing its return) but decreasing its net working capital (i.e., increasing its risk), and vice versa.

2) Cash management

It is important to understand that net cash flow is not the same as profit earned in a period. It is an alarming reality that many business managers have a negligible appreciation of this fundamental aspect of accounting. As a result, business failures can frequently be attributed to managers' failure to recognise a looming liquidity crisis (liquidity refers to the ability to honour short-term financial obligations when they are due). Part of the problem stems from management's tendency to give insufficient attention to cash management, due to an overly blinkered focus on profit. This management tendency is understandable when we recognise the widespread use of profit as a key business performance indicator.

By requiring regular and careful preparation of cash budgets, we can counter this tendency for "profit myopia". This is because cash budgets:

1. Identify periods in which a cash deficit is anticipated. Failure to predict such periods is not only potentially costly, it can represent commercial suicide. If a hotel unexpectedly runs out of cash and no lender can be found at short notice, it will have to either liquidate some assets, quickly arrange some long-term finance, or default on liabilities due. An attempt to hastily pursue either of the first two options is likely to result in a costly outcome. By predicting cash deficit periods, however, early negotiations can be conducted with a lending institution (e.g., a bank), and a crisis avoided by establishing a short-term borrowing facility. By taking these steps in a timely manner, not only will a hotel greatly enhance its chances of negotiating favourable loan terms, in extreme cases financial collapse will be averted.
2. Identify periods in which a cash surplus is anticipated. By predicting cash surpluses, plans concerning the optimal investment of the surplus can be developed.

The need for cash budgeting is especially apparent in the hotel industry due to the degree of seasonality experienced in many properties (see discussion in [Chapter 1](#)). As careful cash budgeting is a key element of effective cash management, in this section we closely review a cash budget's preparation. By working through the example, your understanding of how cash differs to profit will be consolidated. Although it is an important management tool, you should not be intimidated by the idea of a cash budget. In many ways it is very similar to your bank statement, i.e., it identifies an opening cash balance, lists cash inflows and outflows, and shows the closing cash balance. To minimise any sense of intimidation, prior to working through the example, why not take a quick sneak preview of the cash budget presented in [Exhibit 13.5](#).

For the cash budgeting example, imagine the BackWoods Retreat, a hotel located in Banff, Canada. The hotel offers accommodation, dining, bar and also seminar facilities. Sue George,

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BackWoods' General Manager, wishes to refocus the marketing of the hotel's seminar facilities by pursuing the small corporate convention and retreat market. Consistent with this, plans have been finalised to refurbish the hotel's two seminar rooms and equip them with state of the art presentation technology.

Following two meetings with the hotel accountant, the projected income statements presented in [Exhibit 13.1](#) have been developed for January, February and March next year. In compiling this budgeted statement, it has been assumed that the hotel's seminar facilities will be refurbished during December this year and that the first conventions will be sold in January next year. No convention, restaurant or bar sales will be made in December while the refurbishment work is underway. Consistent with the higher prices that will be charged upon completion of the refurbishment, the projections indicate higher profit margins than those earned in the past by the hotel. Sue George is particularly encouraged by the projected profit and would like to draw up plans to invest cash earned during this period. It is in connection with this that she has asked you to prepare a cash budget for the January–March period.

Exhibit 13.1

BackWoods Retreat budgeted income statements for January, February and March

	January		February		March	
Revenue						
Conventions	\$ 34,000		\$ 36,000		\$ 40,000	
Restaurant & Bar	<u>16,000</u>		<u>17,000</u>		<u>20,000</u>	
		\$ 50,000		\$ 53,000		\$ 60,000
Expenses						
Food & drink	8,000		9,000		10,000	
Wages & salaries	7,000		7,400		7,800	
Supplies	1,000		1,100		1,200	
Electricity	400		400		400	
Insurance	500		500		500	
Advertising	2,000		2,000		2,000	
Depreciation	<u>3,000</u>		<u>3,000</u>		<u>3,000</u>	
		<u>21,900</u>		<u>23,400</u>		<u>24,900</u>
Profit		<u>\$ 28,100</u>		<u>\$ 29,600</u>		<u>\$ 35,100</u>

In addition to the budgeted income statements, the information detailed in [Exhibit 13.2](#) has been gathered to facilitate your preparation of BackWoods' cash budget.

Exhibit 13.2

Information relating to BackWoods' projection of cash flows

- (i) **Receipts:** It is anticipated that favourable credit terms will have to be extended to the corporate clients targeted when marketing the hotel's new convention facilities. It is projected that 5 per cent of convention revenue will be received in the month prior to the convention as a deposit. Forty per cent of convention revenue will be received at the time the seminar is held, and the remaining 55 per cent will be received in the month following the convention. \$42,000 in convention sales are predicted for April. In the past, 40 per cent of restaurant and bar sales have been for cash and 60 per cent have been charged and collected in the month following the sale. This cash to credit ratio for restaurant and bar sales is expected to continue.
- (ii) **Food & drink purchases:** Food and drink stocks are replenished frequently. This signifies that food and drink purchases in a month are approximately equal to food and drink expenses for the month. One month's credit is taken for all food and drink purchases.
- (iii) **Wages, salaries and supplies payments:** Wages, salaries and supplies are paid in the month they are incurred as an expense.
- (iv) **Electricity payments:** Electricity is paid quarterly. The cost per quarter has been estimated at \$1,200 and the first annual payment is made in March.
- (v) **Insurance payments:** The annual insurance premium of \$6,000 is paid in February.
- (vi) **Advertising payments:** In order to promote the hotel's new seminar facilities, a major advertising campaign costing \$5,000 per month will be undertaken during the first four months of the year. In May, following the initial period of intensive promotion, advertising will revert to the hotel's traditional level of \$500 per month. This signifies that \$24,000 will be spent on advertising over the course of the year ($[4 \times \$5,000] + [8 \times \$500]$). The hotel's accountant felt that for income statement purposes, it is reasonable to pro rata this \$24,000 equally across the year at the rate of \$2,000 per month. He defended this approach on the grounds that sales for the whole year would benefit from the additional market exposure achieved during the initial intensive advertising campaign. All advertising is paid for in the month the service is provided.
- (vii) **Fixed asset payments:** Following an appraisal period in which tests will be conducted to ensure that the new presentation equipment is meeting the vendor's specifications, a final instalment payment of \$150,000 for the seminar room equipment will be made in February. The expense associated with this refurbishment has been included in the depreciation figure in BackWoods' budgeted income statement for January–March.
- (viii) **Opening bank balance:** It is projected that BackWoods will be holding a bank balance of \$6,000 at the beginning of January.

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The income statements presented in [Exhibit 13.1](#), together with the projected cash receipts and payments details presented in [Exhibit 13.2](#) provide you with sufficient information to prepare BackWoods' cash budget for next January, February and March. The easiest way to compile a cash budget involves breaking the exercise into the following three steps:

1. Prepare a schedule of projected receipts by month,
2. Prepare a schedule of projected cash disbursements (payments) by month,
3. Prepare the monthly cash budget by consolidating the monthly receipts and payments schedules and also the estimated cash balance at the beginning of the budget period.

We will now work through each of these steps, in turn, for the BackWoods Retreat.

BackWoods' schedule of projected cash receipts

Preparing the schedule of cash receipts can be tricky when there is a significant variation in the period of credit taken by customers. In the BackWoods Retreat case, we have convention receipts occurring in three instalments (5 per cent in the month prior to the sale, 40 per cent in the month of the sale and 55 per cent in the month following the sale). In addition, we have 40 per cent of restaurant and bar receipts coinciding with the month of sale (i.e., cash sales) and 60 per cent of receipts occurring one month after the sale.

The best way to deal with this slightly awkward pattern of collections is to develop a table with months as columns and types of receipt as rows. The types of receipt are classified according to the period of credit taken (e.g., month prior to sale, month of sale, one month's credit, etc.). BackWoods' schedule of projected cash receipts is presented in [Exhibit 13.3](#). Most people find it easier to prepare this schedule by moving along the rows (i.e., consider each type of receipt in turn), rather than moving down the columns. The total monthly receipts is found by adding the convention monthly receipts to the restaurant and bar monthly receipts. The total presented as the final column is not strictly needed; however, it does provide a useful check that the sum of the rows equals the sum of the columns.

Exhibit 13.3

Schedule of projected cash receipts for BackWoods Retreat

	Jan.	Feb.	Mar.	Total
Convention sales	\$ 34,000	\$ 36,000	\$ 40,000	
Deposit (5% of next month's sales)	\$ 1,800	\$ 2,000	\$ 2,100 ^a	\$ 5,900
40% received in month of sale	13,600	14,400	16,000	44,000
55% received in month following sale	0	18,700	19,800	38,500
Total convention receipts	\$ 15,400	\$ 35,100	\$ 37,900	\$ 88,400
Restaurant & bar sales	\$ 16,000	\$ 17,000	\$ 20,000	
40% cash sales	\$ 6,400	\$ 6,800	\$ 8,000	\$ 21,200
60% received in month following sale	0	9,600	10,200	19,800
Total restaurant & bar receipts	6,400	16,400	18,200	41,000
Total all receipts	\$ 21,800	\$ 51,500	\$ 56,100	\$ 129,400

a: Point (i) in [Exhibit 13.2](#) indicates that \$42,000 is predicted for April's convention sales.

BackWoods' schedule of projected cash disbursements

Consistent with the projected cash receipts schedule, the schedule of cash disbursements can be compiled by placing months in columns and cash flow type in rows. BackWoods' schedule of projected disbursements is presented in [Exhibit 13.4](#). The key to accurately projecting cash receipts and also cash disbursements lies in using well laid out schedules such as those presented in [Exhibits 13.3](#) and [13.4](#). If your schedule is well designed, compiling the data required becomes a relatively straightforward exercise. Now work carefully through [Exhibit 13.4](#) to ensure you can see how each disbursement item has been determined. Again, you will find it easiest to approach the table on a “row by row”, rather than “column by column” basis. The disbursement items are presented in [Exhibit 13.4](#) in the same sequence that they are described in [Exhibit 13.2](#).

Exhibit 13.4

Schedule of projected cash disbursements for BackWoods Retreat

Disbursements	January	February	March	Total
Food and drink (paid in month following purchase).	\$ 0	\$ 8,000	\$ 9,000	\$ 17,000
Wages and salaries (paid in month expense is incurred).	7,000	7,400	7,800	22,200
Supplies (paid in month expense is incurred).	1,000	1,100	1,200	3,300
Electricity (paid quarterly).			1,200	1,200
Insurance (paid annually).		6,000		6,000
Advertising (paid in month advertising is conducted).	<u>5,000</u>	5,000	<u>5,000</u>	15,000
Final instalment payment for presentation equipment.		<u>150,000</u>		<u>150,000</u>
Total disbursements	<u>\$ 13,000</u>	<u>\$ 177,500</u>	<u>\$ 24,200</u>	<u>\$ 214,700</u>

BackWoods' cash budget

Once the projected cash receipts and cash disbursements schedules have been prepared, preparation of the cash budget becomes a relatively straightforward exercise. In the cash budget we determine each month's net cash flow by subtracting the month's total disbursements from the month's total receipts. We then add the opening cash balance to determine the projected cash balance at each month end. This is the approach that has been taken in preparing BackWoods' cash budget presented in [Exhibit 13.5](#).

Exhibit 13.5

A cash budget for BackWoods Retreat

	January	February	March	Total
Total cash receipts ^a	\$ 21,800	\$ 51,500	\$ 56,100	\$ 129,400
Less Total cash disbursements ^b	<u>13,000</u>	<u>177,500</u>	<u>24,200</u>	<u>214,700</u>
Net cash flow	8,800	(126,000)	31,900	(85,300)
Add Opening cash balance ^c	<u>6,000</u>	<u>14,800</u>	<u>(111,200)</u>	<u>6,000</u>
Ending cash balance (negative balance in brackets)	<u>\$ 14,800</u>	<u>\$ (111,200)</u>	<u>\$ (79,300)</u>	<u>\$ (79,300)</u>

a: From Exhibit 13.3.

b: From Exhibit 13.4.

c: January's opening balance provided in Exhibit 13.2 (point viii).

Cash versus profit

It is very important to note that while BackWoods is profitable throughout the quarter (see Exhibit 13.1), it is projected that over the same period its cash balance will decline. Having seen the budgeted monthly income statements, BackWoods' General Manager had anticipated a growing cash balance for the quarter. It is surprising how often in business you will encounter the misconception that cash equates to profit. This example, however, should give you a strong sense of why **cash flow is not the same as profit**. If you have any continuing uncertainty over this issue, you should review Box 13.1 which provides an overview of some of the main reasons why profit is not the same as cash.

Box 13.1

Why is profit not the same as cash?

Revenue vs receipts	We recognise revenue at the time a service is provided, not when cash is received. When a sale is made on account, an account receivable is created and the receipt will lag behind revenue. For BackWoods, as 55 per cent of convention sales and 60 per cent of restaurant and bar sales are on credit, receipts will tend to lag behind revenue.
Purchases vs payments	To facilitate trade, many suppliers extend credit. BackWoods' supplier of food and drink items extend one month credit. This signifies that payments lag behind purchases.

Wages and salaries	Employees are paid following the completion of work or a working period. While most waged employees are paid weekly, the payment nevertheless lags behind the time when work is performed, which is the time wage expense is recognised. This is more marked for salaried employees, especially in those countries where monthly salary payments are common.
Electricity	In many countries, electricity accounts are settled on a quarterly basis. This signifies at least a three month discrepancy between some of the electricity expense incurred and payment for electricity.
Insurance	Insurance and rent are paid in advance of charging the associated expense to the income statement. In the case of insurance, payment is made a year in advance of a portion of the expense.
Fixed asset accounting (i.e., depreciation)	One of the most significant reasons causing a discrepancy between cash and profit arises in connection with depreciation accounting. There are two reasons for this: 1) Fixed assets can be very expensive items; 2) The time lag can be considerable. If a fixed asset is being depreciated over 10 years, a portion of the asset's expense lags 10 years behind the actual payment for the asset.
Long-term financing	When a company arranges a loan or increases its share capital there is an immediate large positive impact on cash flow. The only income statement impact concerns the loan's annual interest expense, however.

Appreciating that profit is not the same as cash is important for two reasons:

1. It highlights why we need to prepare budgeted cash flow statements in addition to budgeted income statements.
2. It highlights the potential of profitable firms becoming bankrupt. Many new profitable ventures expand very quickly. This period of expansion can be a very dangerous stage in the life of an organisation, as expansion signifies an outflow of funds on assets such as accounts receivable, inventory and fixed assets. The cash flow associated with this expansion can result in a liquidity crisis, i.e., the expanding firm can run out of cash. Just look at the highly profitable BackWoods Retreat example. The hotel's investment in assets resulted in it having a negative cash balance in February. If BackWoods management did not take care to produce a cash budget and arrange a loan to cover its projected cash deficit period, its inability to pay creditors could put it out of business. This clearly shows how profitable firms can go bankrupt. **If you ensure maintenance of sufficient cash, you will ensure maintenance of a business.**

3) Accounts receivable management

One of the closest to cash assets is accounts receivable. This is because in the normal course of business an account receivable will become cash in the short term. There are two costs associated with extending credit to customers:

- 1) The cost of the selling company not being able to deposit the monetary value of a completed sale in its bank, i.e., as a result of not collecting cash at the time of a sale, the vendor will forgo some bank account interest (or if the vendor has a bank overdraft, it will incur additional interest expense).
- 2) The cost associated with lost revenue due to some accounts receivable proving to be uncollectible.

These costs might cause you to question why companies extend credit. The answer is because credit facilitates trade. Considerable sales would be lost if credit was not extended. It is hard to contemplate a 5-star hotel not allowing customers to use a credit card to settle their accounts. This shows how much we are conditioned to expect the granting of credit whenever we purchase a service from a hotel. In addition to credit card sales, many large hotels have corporate clients that purchase on account.

The cost associated with extending trade credit signifies that hotels have to perform a credit balancing act, i.e., they have to ensure the credit period extended is neither too much nor too little. In addition, a hotel has to ensure that credit is only granted to creditworthy customers. The widely acknowledged five C's of credit management provides a useful checklist of factors to consider when deciding whether to grant credit to a particular customer. The five C's comprise character, capacity, capital, conditions and collateral, and are described in [Box 13.2](#).

Box 13.2

The five C's of credit management

The following issues should be appraised when considering whether to extend trade credit to a customer:

1. *Character*: does the customer have a predisposition towards timely payment of accounts?
2. *Capacity*: does the customer have the capacity to run a successful business?
3. *Capital*: does the customer have sufficient working and long-term capital to honour the account when it is due for payment?
4. *Conditions*: are there any particular economic conditions that might affect the potential customer's ability to pay? In addition, there might be particular circumstances such as low occupancy in the off season that might cause a hotel to consider extending credit to less creditworthy customers.
5. *Collateral*: does the customer have assets that could be liquidated relatively easily in the event of a liquidity crisis that threatened timely reimbursement of the account due?

When appraising a hotel's accounts receivable strategy and performance, it can be useful to determine the average number of days' credit that it extends to customers. We saw in [Chapter 5](#) that we can gauge the accounts receivable turnover and average number of days' credit advanced by a company if we can determine its level of credit sales and average accounts receivable balance. For example, imagine that London's HighTowers hotel made £2,835,000 in credit sales during the most recent calendar year and that its year-end accounts receivable balance was £270,000. By dividing credit sales by the accounts receivable balance, we can determine HighTowers' accounts receivable turnover, as follows:

$$\frac{\text{Credit sales}}{\text{Accounts receivable balance}} \quad \text{i.e.,} \quad \frac{\pounds 2,835,000}{\pounds 270,000} = 10.5$$

By dividing 365 days (i.e., the days in a year) by the accounts receivable turnover, we can determine the average number of days that credit is extended, as follows:

$$\frac{\text{Days in a year}}{\text{Accounts receivable turnover}} \quad \text{i.e.,} \quad \frac{365}{10.5} = 34.8 \text{ days}$$

For those working within a company, a more detailed analysis of the accounts receivable balance can be conducted by preparing an "Accounts Receivable Aging" schedule. An example of such a schedule is presented in [Exhibit 13.6](#). This schedule provides a breakdown of HighTowers' total accounts receivable balance according to the number of days that each amount owing is overdue. When reviewing the schedule, assume that we are currently standing at the end of December and that HighTowers has a policy of extending 30 day credit terms. This signifies that credit arising from sales made during December can be described as current, i.e., it is not yet overdue.

Exhibit 13.6

Accounts receivable aging schedule

	Days overdue					
	Current	0–30	31–60	61–90	Over 90	
Sale period	<u>December</u>	<u>November</u>	<u>October</u>	<u>September</u>	<u>August</u>	<u>Total</u>
Accounts receivable	£4,900	£490	£1,400	£140	£70	£7,000
Percentage of total	70%	7%	20%	2%	1%	100%

With the exception of the 31–60 days overdue accounts, the schedule reveals a fairly typical time distribution of the accounts receivable balance. To have 20 per cent of the accounts receivable balance falling within the 31–60 days overdue category is cause for some concern, however. Immediate management action addressing this issue may be warranted. It may be that one large account is in dispute, or one or more debtors are experiencing liquidity

Working capital management

problems. If further detail is sought, an accounts receivable aging schedule that separately analyses the age of each individual debtor's account can be prepared. Most computerised accounting systems have the capacity to provide accounts receivable aging schedules in such a format.

Once problem accounts have been identified, a series of steps designed to collect outstanding debts can be initiated. These steps are summarised in [Box 13.3](#). If an account is particularly large, several initial steps can inform what collection strategy would be most appropriate. These include:

- 1) Determine why the customer has withheld payment.
- 2) Determine the payment history of the customer.
- 3) Determine whether the customer is a large client that might take their business elsewhere if a significant dispute over credit develops.
- 4) Determine whether we have personnel who might be able to expedite payment through their contacts in the debtor firm.

Box 13.3

Accounts receivable collection techniques

The following account collection methods are listed in the order with which they are generally used in connection with a particular account:

1. *Letters*: once an account has been overdue for a number of days, a polite reminder can be mailed. Following a designated period, if payment is not forthcoming, a second more strongly worded letter can be sent.
2. *Telephone calls*: in addition to letters, one or more telephone calls to the accounts payable officer concerned can be made. This technique can be particularly effective if the credit manager possesses good negotiating skills and has extensive business contacts.
3. *Site visits*: visiting the debtor can be an effective counter to the "cheque is in the mail" syndrome, as payment can be made on the spot. It is only feasible, however, when the debtor is located in the vicinity of the company seeking reimbursement.
4. *Collection agency*: there are an increasing number of factoring companies that specialise in credit management and debt collection. As this can represent an expensive way to collect accounts receivable, it should only be used if none of the techniques referred to above have been successful.
5. *Legal action*: this can be regarded as the most radical step in a collection strategy. It is expensive and can trigger the debtor company's bankruptcy. Even if successful, legal action can be expected to sour relations with the debtor firm and signify the end of a trading relationship.

4) Inventory management

Paralleling the balancing act that has to be performed when determining the credit period to be extended to customers, care has to be taken in inventory management to ensure that neither too little nor too much inventory is held. A hotel that holds low inventory balances runs the risk of experiencing stock-outs. This can result in the immediate loss of sales and, perhaps more significantly, it can also significantly damage customer goodwill (e.g., a restaurant customer becoming disgruntled when several menu items are unavailable). If too much inventory is held, the hotel will experience high inventory carrying costs that include:

1. The opportunity cost of money tied up in inventory, i.e., money invested in inventory can be viewed as money that could be earning interest if it was invested in a bank account.
2. The cost of pilferage.
3. Cost of deterioration of perishable items.
4. Cost of inventory insurance.
5. Handling costs, i.e., if large amounts of inventory are held, additional costs may result from problems associated with storing, locating and moving inventory.
6. The cost of maintaining and financing storage space.

The correct amount of inventory to be held is largely a matter of judgement. One way to inform such a judgement is to monitor inventory turnover. As noted in [Chapter 5](#), this can be computed by dividing the cost of sales by the average inventory balance. If a hotel is part of a hotel chain, it can be a useful exercise to benchmark inventory turnover rates in order to identify those members of the chain holding relatively high or low levels of inventory.

A second aspect of inventory management that lends itself to analysis is the question of how much inventory should be ordered when making a purchase order. The EOQ model is a technique enabling us to estimate the optimal order size for purchase orders. While theoretically correct, the model does require fairly restrictive assumptions. Despite this, the model can be applied in many hotel situations and it does highlight how purchasing officers should attempt to balance the trade-off between minimising inventory holding costs and the costs of processing orders and shipments. The model is outlined in [Box 13.4](#).

Box 13.4

Using the EOQ model to determine optimal order size

The EOQ model assumes:

- rate of demand for inventory item in question is relatively predictable
- administrative order costs do not vary with size of order processed.

The EOQ can be calculated by applying the following formula:

$$\text{EOQ} = \sqrt{(2 \times U \times O \div C)}$$

where:

U = Usage per period of time (same period of time as used for carrying cost).

O = Cost of ordering and receiving an order.

C = Carrying cost per unit of inventory per period of time (same period of time as used for usage).

Example:

Imagine that New York's Elite Restaurant offers an extensive menu of fine wines. The average case of wine costs Elite \$360. Past experience indicates 750 cases of wine are sold per year by the restaurant. Following discussions with Elite's purchasing and store managers, Elite's accountant has estimated that the cost of ordering and receiving a shipment of wine is \$30. As the restaurant holds any excess working capital as marketable securities that earn 5 per cent per annum, the accountant estimates the cost of holding a case of wine for a year to be \$18 (i.e., $\$360 \times 5$ per cent).

The EOQ for Elite's wine inventory can be calculated as follows:

$$\sqrt{(2 \times 750 \times \$30 \div \$18)} = \\ \sqrt{(2,500)} = 50 \text{ cases per order.}$$

By applying the EOQ, we have determined that if Elite orders its wine in shipment sizes of 50 cases, the sum of its annual carrying and ordering costs will be minimised.

5) Accounts payable management

Accounts payable management can be seen as the flip side of accounts receivable management. For an account receivable, bank interest that could be earned is lost due to money that relates to a sale being held by a customer. For an account payable, we can gain bank interest from holding money that relates to a purchase already made. Care should be taken not to abuse credit terms extended by suppliers, however. Good supplier relations can be a key source of competitive advantage. Characteristics of a good supplier include a willingness to:

1. meet rush orders,
2. tailor shipments to specific requests,
3. maintain high quality in goods and services supplied,
4. provide flexible credit terms.

One particular issue that can arise in connection with accounts payable management is a discount offered by a supplier for early payment of an account. This type of trade discount is typically stated using abbreviated terms such as "1/10 *net* 30". This means that the purchaser can deduct a 1 per cent discount off the invoiced amount if payment is made ten days after the start of the credit period (typically the invoice date), and if the discount is not taken, the

invoiced amount is due for payment 30 days after the start of the credit period. A method enabling you to appraise whether the discount should be taken is described in the financial decision making in [action case 13.1](#).

FINANCIAL DECISION MAKING IN ACTION CASE 13.1

The Financial Controller determining whether to take a trade discount

In most organisations, accounts payable management falls within the financial controller's jurisdiction. An issue that needs to be managed in accounts payable management is the question of whether to take the early payment discount offered by some suppliers. This issue can be analysed by viewing an early payment as an advance of funds that earns a return. We can determine the effective annual rate of return on this advance relatively easily in the following way.

Imagine British Airways has received a £1,000 invoice and credit terms of 2/10 net 45 from one of its contract food suppliers. This means BA can either pay £980 in 10 days' time, or £1,000 in 45 days' time. By advancing £980 35 days earlier than necessary, BA will get a return of £20 (i.e., the £20 saved on the invoice payment). To find what this represents in terms of an annual rate of return, we have to gross up the £20 return on the £980 advance to translate it from a 35-day period to 365 days, i.e.:

$$\frac{\pounds 20}{\pounds 980} \times \frac{365}{35} = 0.213 \text{ (or 21.3\%)}$$

This calculation used the actual monetary amounts involved. Alternatively, the following generic formula can be used:

$$\frac{\% \text{ discount offered}}{100 - \% \text{ discount offered}} \times \frac{\text{Days in a year}}{\text{Days difference in final due date and discount date}}$$

This generic formula can be applied to the above example as follows:

$$\frac{2}{98} \times \frac{365}{(45 - 10)} = 0.213 \text{ (or 21.3\%)}$$

For this example, the financial controller would conclude that if BA has enough cash to enable early payment, and if it is earning less than 21.3 per cent per annum interest on any cash balances held, then it should take the discount and gain the benefit of an effective 21.3 per cent annual rate of return. If BA does not have sufficient cash and must borrow to take the discount, then as long as the cost of borrowing is less than 21.3 per cent, it is in its interest to borrow £980 and take advantage of the trade discount offered.

6) Working capital management

As noted in the chapter's introduction, net working capital is defined as current assets – current liabilities. So far we have considered management issues arising in connection with the main elements of working capital, i.e., cash, accounts receivable, inventory and accounts payable. We now turn to consider a more holistic dimension of working capital management. Working capital management can be a particularly important dimension of financial management in hotels, as high seasonality translates into high working capital volatility. During the busy season, a hotel will have a relatively high level of current assets. This is because:

- higher levels of cash will be needed to support the above average levels of daily purchase payments,
- higher accounts receivable will result from the above average levels of sales,
- higher inventory levels will be needed to support the above average levels of activity.

Figure 13.1 depicts investment in fixed and current assets for a resort hotel that experiences a busy mid-summer and mid-winter season. Note how the hotel's fixed assets remain constant throughout the year. Its current assets, however, exhibit considerable volatility, rising to highs during busy seasons and lows during quiet seasons. It is this volatility in current assets that results in the volatility of the hotel's total asset base.

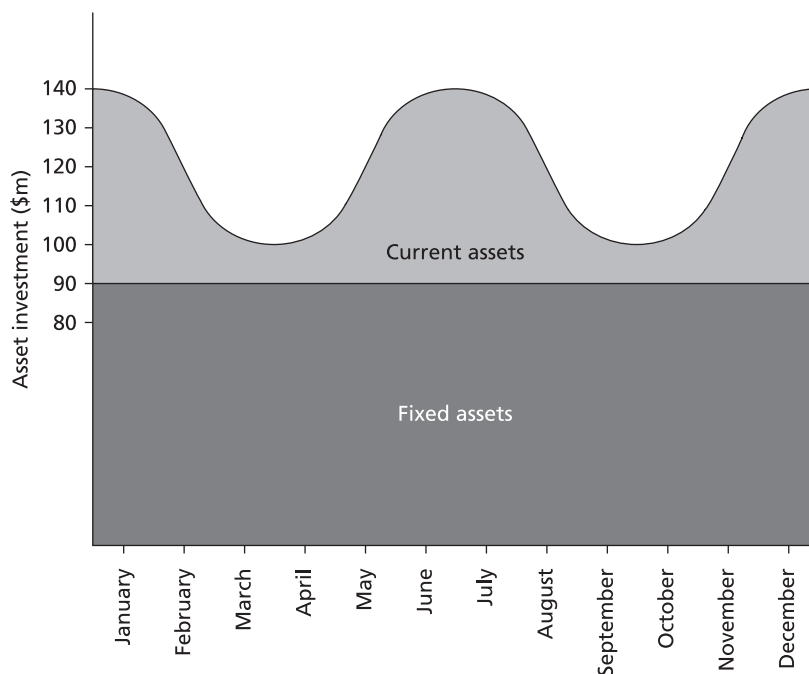


Figure 13.1 The impact of seasonality on asset investment

A key working capital management issue that arises in connection with Figure 13.1 concerns the mix of current liabilities and long-term capital that should be used to finance a hotel's fluctuating asset base. It is widely acknowledged in the finance literature that long-term

assets (i.e., fixed assets) should be financed through long-term capital. Therefore, for the hotel depicted in Figure 13.1, the minimum amount of long-term financing that should be raised is \$90m. It is also apparent from Figure 13.1 that the permanent amount of funds required during the year is \$100m (total assets never drop below \$100m), and a case could be made for financing all of this permanent portion of total assets with long-term capital.

The issue of what proportion of the moving current asset base should be financed through current liabilities boils down to a profit vs risk trade-off decision. This is because, as is explained in Box 13.5, a relatively high ratio of current liabilities to long-term capital signifies a high profit/high risk strategy, and a relatively low ratio of current liabilities to long-term capital signifies a low profit/low risk strategy. While all managers like to see increased profit levels, it is obvious that care must be taken not to jeopardise an organisation's solvency by becoming too dependent on current liability financing.

Box 13.5

The profit/risk trade-off in current liability financing

The profit aspect: Current liabilities are cheaper to finance than long-term capital. Accounts payable and wages accrued generally have no cost associated with them. In addition, except for times when there is a widespread expectation that interest rates will decline in the future, it is normal for short-term lending rates to be below long-term lending rates.

The risk aspect: If a hotel increases its current liabilities relative to long-term capital its net working capital will decline. Net working capital is a key indicator of a firm's ability to pay its debts over the short term. A decrease in net working capital signifies increased risk due to the lower short-term asset coverage of short-term liabilities.

Effects of high current liability financing: Synthesizing the profit and risk aspects of current liability financing, we can conclude that a relatively high short- to long-term financing ratio has a positive impact on profit and risk.

Effects of low current liability financing: It also follows that a relatively low short- to long-term financing ratio has a negative impact on profit and risk.

When considering this short- versus long-term financing issue, if an aggressive financing approach is taken, it should be noted that not all incremental investments in current assets have to be financed by short-term loans. This is because part of the extra current asset investment occurring during busy seasons will be financed spontaneously by higher current liabilities that also arise during busy seasons. This spontaneous financing occurs because higher business activity levels will stimulate higher accounts payable balances and higher average wage accrued balances due to increased levels of purchasing and casual staff employment.

7) Summary

In this chapter we have looked at management issues associated with the main accounts that comprise working capital, i.e., cash, accounts receivable, inventory and accounts payable. A particularly important aspect of the chapter concerned an illustration of how cash flow is not the same as profit.

Having read the chapter you should now know:

- how cash budgeting represents an important aspect of cash management,
- how cash differs to profit,
- what issues need to be considered when deciding whether to extend credit to a new customer,
- how an accounts receivable aging schedule can aid the identification of customer accounts warranting particular attention,
- how application of the EOQ model can aid the reduction of costs associated with inventory management,
- how to analyse whether to accept a supplier's offer of a discount for early payment of an account payable,
- how a risk/return trade-off exists when deciding what proportion of short- versus long-term capital should be used to finance current asset investments.

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Problems

Problem 13.1

Explain why cash flow for a particular period of time can be different to profit for the same period of time.

Problem 13.2

Identify five factors that should be appraised when considering whether to extend trade credit to a new customer.

Problem 13.3

The marketing department of Singapore's CrownJewel Hotel has projected the following sales in the last half of the current financial year.

CrownJewel projected sales (in \$ thousands)

	July	August	September	October	November	December
Rooms	630	660	600	540	500	600
Restaurant & Bar	90	100	80	70	60	80

Most of CrownJewel's room sales are made to corporate clients. Past experience indicates that 10 per cent of room sales are for cash, 50 per cent is collected in the month following the sale, 35 per cent is collected two months following the sale and 5 per cent of sales are to a large company that takes three months to settle accounts.

In the past, 30 per cent of restaurant and bar sales have been for cash and 70 per cent have been charged and collected in the month following the sale.

Required:

Prepare a schedule showing CrownJewel's projected cash receipts in October, November and December.

Problem 13.4

In connection with the CrownJewel sales estimates provided in the previous Problem, past experience has shown that room variable costs are 20 per cent of room revenue. 60 per cent of these variable costs are paid for in the month the expense is incurred and the remainder is paid for in the following month.

Restaurant and bar variable costs comprise wages, food and drink. Wages are 10 per cent of restaurant and bar revenue and are paid for in the month incurred. The cost of food and drink is 15 per cent of restaurant and bar revenue. Due to the CrownJewel's inventory stocking policy, 40 per cent of food and drink is purchased one month before it is sold. The remainder is purchased in the month of sale. All food and drink is purchased from the same company which extends one month trade credit.

The hotel has fixed costs of \$15,000 per month which are paid for in the month incurred. In addition, the hotel estimates it will make a quarterly electricity payment of \$3,000 in November and its annual insurance premium of \$7,500 is due for payment in December.

Required:

Prepare a schedule showing CrownJewel's projected cash disbursements for October, November and December.

Problem 13.5

Draw on your solutions provided to the previous two Problems to prepare CrownJewel's cash budget for October, November and December. It has been estimated that the hotel will have a positive cash balance of \$12,000 on 30th September.

Problem 13.6

The ShireLodge provides a residential convention service in England's Yorkshire Dales. The lodge's general manager is concerned about cash flow in the next few months particularly as insurance will soon be due for payment.

The following revenue and expense estimates have been developed for the first four months of 20X2:

	January	February	March	April
Convention sales revenue	£10,000	£12,000	£13,000	£14,000
Fixed costs:				
Salaries	£4,000	£4,000	£4,000	£4,000
Ground maintenance	£500	£500	£500	£500
Insurance	£420	£420	£420	£420

It has been estimated that sales in December 20X1 will be £8,000. Previous cash collections indicate that 10 per cent of all sales are collected in the month prior to the sale as a deposit. 50 per cent of all sales are collected in the month of the sale, and 40 per cent of sales are collected in the month following the sale.

Variable costs are 15 per cent of revenue. Ninety per cent of variable costs are paid in the month of the sale to which they relate, and the remainder are paid in the month prior to the sale (purchase of some food and other items in preparation for conventions). Salary and ground maintenance fixed costs are paid for as they are incurred. Insurance is paid for twice a year, in January and July. It is estimated that on 1st January 20X2 the lodge will have £4,200 in its bank account.

Required:

Prepare a cash budget showing receipts, disbursements and opening and closing cash balances for each of the first three months of 20X2.

Problem 13.7

A review of the accounts receivable records of Auckland's CreatureComforts Hotel reveals the following year-end information.

**CreatureComforts Hotel –
Analysis of age of accounts receivable as at 31/12/X1**

Month of sale	Accounts receivable	%
July	\$ 2,594	1
August	13,448	5
September	2,782	1
October	7,890	3
November	26,300	10
December	<u>210,000</u>	<u>80</u>
Total year-end balance	<u>\$263,014</u>	<u>100</u>

The credit manager believes that the report accurately shows the proportion of the year-end accounts receivable balance that can be traced to months in which credit sales were made. Forty per cent of the hotel's \$6,000,000 annual sales are on credit. The hotel extends 30-day credit terms.

Required:

- Using the year-end account balance, evaluate the effectiveness of the hotel's accounts receivable collection system.
- If the hotel's peak season runs from November through to January, how does this additional information affect your answer to a).
- Prepare an aging of accounts receivable schedule in order to obtain additional insight into the status of the hotel's accounts receivable balance. What further observations can be made from the aging schedule.

Problem 13.8

The laundry department of the Edinburgh hotel, TartanDays, orders concentrated laundry detergent in 10 kilogram boxes. Each box costs £32. It costs £20 to place, process and receive a laundry detergent order and TartanDays has estimated that it would cost £2 to hold a box of detergent in inventory for a year. The hotel uses 25 boxes of detergent per month.

Required:

What is the TartanDays' EOQ for laundry detergent?

Problem 13.9

Toronto's Roma Pizzeria sells a variety of pizzas. The largest inventory item held by Roma is cheese. The owner has approached you for advice in connection with the size of orders that should be placed when ordering cheese. You have ascertained the following:

- Cheese is ordered in blocks at \$20 per block.
- Roma currently places an order with its cheese supplier every two weeks and the average order size is 500 blocks. Roma has a policy of timing its cheese reordering so that its inventory of cheese has declined to 40 blocks when the new shipment arrives.
- Money not invested in inventory could be invested in a bank account to earn Roma 5 per cent per annum.
- The cheese is shipped in refrigerated transport and the cost of ordering, shipping and receiving a shipment is \$30.

Required:

- What is the Roma's EOQ for cheese? Assume 52 weeks in a year.
- What is the sum of Roma's current cheese carrying and ordering costs? Assume 52 weeks in a year.
- What would Roma save in total carrying and ordering costs if it changed its order size to the most economic order quantity (EOQ).

Problem 13.10

Johannesburg's "MouthWatering" Restaurant has approached you for assistance in determining whether it should take the 1/10 net 30 trade discount terms offered by its main food supplier. The restaurant currently has invested excess liquidity in marketable securities earning an 8 per cent average annual rate of return.

Required:

Conduct an analysis to demonstrate whether the MouthWatering Restaurant should take the trade discount offered.

Problem 13.11

Feast'N'Run provides a contract catering service to several university and college campuses. One of its main suppliers has offered trade discount terms of 1/10 net 40. In the past, Feast'N'Run has taken an average of 50 days credit when settling its trade accounts. The chief accountant feels that this policy has not damaged relations with any of its suppliers and proposes to continue with it, except when making an early payment to secure a discount. Feast'N'Run finances its investment in working capital by short-term borrowing that carries an annual interest rate of 9.5 per cent.

Required:

Conduct an analysis to demonstrate whether Feast'N'Run should take the trade discount offered.

Problem 13.12

Le SlopeVerticale is a French skiing hotel complex offering accommodation, restaurant, bar, ski shop and equipment hire facilities. The complex has estimated it will have the following assets for the forthcoming year:

<u>Month</u>	<u>Current assets</u>	<u>Fixed assets</u>	<u>Total assets</u>
January	€ 60,000	€ 1,000,000	€ 1,060,000
February	60,000	1,000,000	1,060,000
March	60,000	1,000,000	1,060,000
April	40,000	1,000,000	1,040,000
May	6,000	1,000,000	1,006,000
June	2,000	1,000,000	1,002,000
July	2,000	1,000,000	1,002,000
August	2,000	1,000,000	1,002,000
September	2,000	1,000,000	1,002,000
October	6,000	1,000,000	1,006,000
November	40,000	1,000,000	1,040,000
December	60,000	1,000,000	1,060,000

With respect to the cost of financing these assets, no interest is paid on the balance of trade accounts payable or accrued wages, which fluctuate through the year. At any time, the aggregate of these two accounts is generally 60 per cent of current assets. The remainder of SlopeVerticale's investment in assets is financed by:

- Long-term financing costing an average of 10 per cent per annum.
- A floating short-term bank loan carrying an interest rate of 6 per cent per annum (used to cover any financing shortfall).

Required:

- a) If SlopeVerticale's long-term financing is €1,000,000:
 1. Based on the asset projections provided, determine the floating short-term bank loan required in each month of the year.
 2. Determine SlopeVerticale's total financing cost for the year.
- b) If SlopeVerticale's long-term financing is €1,020,000:
 1. Determine the floating short-term bank loan required in each month of the year.
 2. Determine SlopeVerticale's total financing cost for the year.
- c) What are the profit/risk trade-offs associated with the different financing options identified in a) and b).

Chapter 14

Investment decision making

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. how the accounting rate of return, payback, net present value and internal rate of return investment appraisal techniques can be applied,
2. the relative merits of these investment appraisal techniques,
3. what is meant by the “time value of money”,
4. how the present value of a cash flow occurring in the future can be determined using discounting tables.

1) Introduction

This chapter focuses on analytical methods that can be used to assess the merit of long-term investment proposals. The process of rationing funds to long-term investment proposals is often referred to as “capital budgeting”. In the context of financial management, the term “capital” is used when referring to long-term funds (we talk of a company “raising capital” when it issues more equity finance or borrows long-term debt). In the earlier chapter concerned with budgeting, it was noted that the “budget” relates to plans for the forthcoming year. It follows that “capital budgeting” relates to longer-term budgeting, i.e., decision making concerned with investing in fixed assets such as laundry or kitchen equipment, or the decision to refurbish rooms. As a large proportion of a hotel’s assets are fixed assets, it is evident that **capital budgeting is an important decision making area for hotel managers.**

The chapter is structured around the following four investment appraisal techniques:

- accounting rate of return,
- payback,
- net present value,
- internal rate of return.

2) Accounting rate of return

A worked example that highlights the calculation of the accounting rate of return is presented in [Box 14.1](#).

Box 14.1

Finding an investment proposal's accounting rate of return

The accounting rate of return (ARR) can be found by applying the following formula:

$$ARR = \frac{\text{Average annual profit generated by the investment}}{\text{Average investment}}$$

Usually, ARR is stated as a percentage, therefore multiply the above formula by 100.

Imagine Auckland's KiwiStay Hotel is appraising a 1st January 20X0 investment of \$8,000 in a drinks vending machine that will increase accounting profits by \$1,000 in 20X0, \$2,000 in 20X1 and \$3,000 in 20X2. At the end of 20X2, it is estimated the vending machine will be sold for \$2,000.

Calculating the average annual profit generated by the investment is relatively straightforward. We find it is \$2,000 by taking the average of the profit generated in years 20X0, 20X1 and 20X2 $([\$1,000 + \$2,000 + \$3,000] \div 3)$.

The average investment is a slightly more challenging concept to grasp, however. Try thinking of it as "The average amount of money invested in the asset during its life". At the beginning of 20X0, it is evident that \$8,000 is invested in the asset (i.e., the initial investment). At the end of the life of the asset, it is evident that \$2,000 is effectively invested, as this is the amount that could be liquidated if the asset is sold. As the asset is worth \$8,000 at the beginning of its life and \$2,000 at the end of its life, its average value over the duration of its life is \$5,000. This is the midpoint between \$8,000 and \$2,000, and can be computed as follows: $([\$8,000 + \$2,000] \div 2)$.

As the average annual profit is \$2,000 and the average investment in the asset is \$5,000, the ARR can be computed as follows:

$$ARR = \frac{\$2,000}{\$5,000} \times 100 = 40\%$$

Investment decision making

At first glance the ARR might appear conceptually appealing. It has major shortcomings, however. These shortcomings include:

1. The ARR fails to consider the period of the investment. Suppose a hotel is deciding whether to take the 40 per cent ARR investment option with a 3 year life described in [Box 14.1](#), or a second \$8,000 investment option that has a 10 year life and an ARR of 38 per cent. Both returns appear very high. Consequently, we are left to question, would you like to make an investment that provides a very high return for 3 years, or an investment that provides a very high return for 10 years? Let's assume that the hotel in question generally makes an average return of 12 per cent on its assets. By investing in the 10 year asset that provides a 38 per cent ARR, it will be able to increase its average return on assets for seven years longer than if it invests in the 3 year asset that provides a 40 per cent ARR. In this case, it appears that the 10 year 38 per cent ARR investment option is preferable to the 3 year 40 per cent ARR option.
2. The ARR is based on accounting profits. These figures involve some apportioning of cash flows to different accounting periods (e.g., depreciation). As a result, profits are not "real" in a tangible sense. They represent nothing more than the accountant's "account" of performance. Cash flows, however, are real, and it is the commercial reality of the timing of money entering and exiting the organisation, and not the accountant's account, that we need to incorporate in the decision model.

3) Payback

Surveys of capital budgeting practice highlight the popularity of the payback investment appraisal technique amongst hotel managers (e.g., Guilding and Lamminmaki 2007). Payback's popularity may result from it being an intuitively appealing approach that is relatively simple to understand. In addition, payback can be used as an initial screening mechanism prior to the use of more sophisticated investment appraisal techniques. Application of the payback approach to appraising an investment proposal is outlined in [Box 14.2](#).

Box 14.2

Finding an investment proposal's payback

Payback can be calculated as follows:

Payback = The time taken to recoup the cash invested in an asset.

Payback example 1:

Imagine an initial investment of \$20,000 will increase operating cash inflows by \$5,000 in each of the 8 years of an asset's life.

Payback = 4 years
(It takes 4 years to get the \$20,000 back).

Payback example 2:

A 1st January 20X0 investment of \$10,000 will increase operating cash inflows by \$3,000 in 20X0, \$4,000 in 20X1 and \$6,000 in 20X2.

Payback = 2.5 years

(After two years, \$7,000 of the \$10,000 investment will have been recouped. As the operating cash inflow in the third year is \$6,000, it is assumed that the final \$3,000 needed will have been recouped half way through 20X2).

Like accounting rate of return, the payback technique has several shortcomings. Two major shortcomings of the payback approach are:

1. It fails to consider any cash flows occurring after the payback period. The second of the two examples presented in [Box 14.2](#) has the faster payback; however, the first example generates the most lifetime cash inflows. In the first payback example, note that if the projected operating cash inflows had been \$100,000 in each of the last four years of the investment's life, the payback would still be four years.
2. It fails to recognise the time value of money, i.e., \$1 today does not have the same value as \$1 in a year's time. Payback treats cash flows occurring in different time periods as if they have the same value.

4) Net present value (NPV)

NPV is based on the concept that \$1 in one time period is not worth the same as \$1 in another time period (\$1 today is worth more than \$1 in a year's time). If \$1 could be invested in a bank account to earn 10 per cent, then we would be indifferent between having \$1 now or \$1.1 in a year's time. Therefore, if we expect an interest rate of 10 per cent for the foreseeable future, \$1 today has the same value as \$1.1 in one year's time.

The view that \$1 today does not have the same value as \$1 in a year's time is not recognised in the accounting rate of return nor the payback method. Note that in the examples above, no attempt was made to adjust the value of future profits (in the ARR example), or future cash flows (in the payback example) in order to bring them into line with cash flows occurring at the beginning of the project's life.

The NPV investment appraisal technique involves finding today's value of future cash flows associated with an investment proposal. When today's value of a project's inflows are greater than today's value of the project's outflows, the project is described as having a positive "net present value". A positive net present value signifies that a project is acceptable; a negative net present value (i.e., the present value of a project's outflows are greater than the present value of its inflows) signifies that a project should be rejected.

Today's value of a future cash flow can be found by multiplying the future cash flow by the appropriate factor appearing in [Table 14.1](#) or [Table 14.2](#). These tables are widely referred to as "discounting tables". [Table 14.1](#) presents the present value factors to be used when finding the present value of a single cash flow. [Table 14.2](#) presents the present value factors to be used when finding the present value of a series of equal cash flows (a series of equal cash flows is

Table 14.1 Present value factors for a single cash flow (PV)

Year	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026

Table 14.2 Present Value Factors for an annuity (PVA) [assumes first cash flow occurs at end of first year]

Year	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	18.046	16.351	14.877	13.590	12.462	11.470	10.594	9.818	9.129	8.514	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870

referred to as an “annuity”). **Box 14.3** presents two small examples that illustrate how the tables can be used to find the present value of a future cash flow.

Box 14.3

Using discounting tables to find the present value of future cash flows

Discounting example 1

Assuming an interest rate of 10 per cent, what is today's value of a \$300 cash inflow occurring in 4 years' time?

Answer: Firstly, note that we are dealing with a single cash flow, therefore we turn to **Table 14.1** (Present value factors for a single cash flow). In this Table, move along the columns until you come to the column headed 10%. Then move down the rows in this column until you come to the 4 year row. The factor you will find is 0.683. This signifies that if we multiply \$300 by 0.683, we will have found today's value (or the present value) of a \$300 cash flow occurring in 4 years' time.

In the calculation presented below, the term “PV” is an abbreviation of “Present Value” and is used to highlight the fact that the factor used has been drawn from the “present value of a single cash flow” table. The first number following the “PV” term refers to the relevant interest rate and the second number following the term refers to the relevant number of years. We find the present value of \$300 in four years' time to be \$204.90.

$$\text{Present value} = \$300 (\text{PV}_{10\%, 4\text{yr}}) = \$300 \times 0.683 = \$204.90$$

Discounting example 2

Assuming an interest rate of 12 per cent, what is today's value of receiving an annual payment of \$400 in each of the next 5 years? Assume the first payment is in 1 year's time.

Answer: Firstly, note that in this second example we are dealing with a series of equal cash flows, therefore we turn to **Table 14.2** (Present values factors for an annuity). This table has been compiled on the basis that the first cash flow of the stream of equal cash flows will occur one year from today. In the same manner to that used in the first discounting example, move along the columns until you come to the column headed 12 per cent. Then move down the rows in this column until you come to the 5 year row. The factor you will find is 3.605. In the calculation presented below, the term “PVA” is an abbreviation of “Present Value of an Annuity” and is used to highlight the fact that the factor used has been drawn from the “present value factors for an annuity” table.

$$\text{Present value} = \$400 (\text{PVA}_{12\%, 5\text{yr}}) = \$400 \times 3.605 = \$1,442$$

Having seen how the discounting tables can be used, we can now turn to calculating the NPV of an investment proposal. To do so, we need to isolate all incremental cash flows resulting from a decision to invest (including changed taxation cash flows), then bring these cash flows to present value. Remember, if a proposed investment has a positive NPV, it is acceptable. If it has a negative NPV, it should be rejected. If we are choosing between two mutually exclusive projects, select the one with the higher NPV. Two examples that illustrate the determination of an investment proposal's NPV are provided in [Box 14.4](#).

Box 14.4

Finding an investment proposal's net present value

A project's NPV is determined by deducting its initial investment from the present value of the cash inflows that the project will generate.

NPV example 1: A proposed investment of \$20,000 will increase net cash inflows by \$5,000 in each of the following 8 years. The company considering the investment has determined that it requires a 12 per cent return for this proposal to be acceptable.

$$\begin{aligned}\text{NPV} &= -\$20,000 + \$5,000 (\text{PVA}_{12\%, 8\text{yr}}) = \\ &= -\$20,000 + \$5,000 (4.968) = \\ &= -\$20,000 + \$24,840 = \$4,840\end{aligned}$$

NPV is positive, therefore proposal is acceptable.

NPV example 2: A 1st January 20X0 investment of \$10,000 will increase cash inflows by \$3,000 in 20X0, \$4,000 in 20X1 and \$6,000 in 20X2. The company considering the investment requires a 12 per cent return on investments.

$$\begin{aligned}\text{NPV} &= -\$10,000 + \$3,000 (\text{PV}_{12\%, 1\text{yr}}) + \$4,000 (\text{PV}_{12\%, 2\text{yr}}) + \$6,000 (\text{PV}_{12\%, 3\text{yr}}) = \\ &= -\$10,000 + \$3,000 (.893) + \$4,000 (.797) + \$6,000 (.712) = \\ &= -10,000 + 2,679 + 3,188 + 4,272 = \$139\end{aligned}$$

NPV is positive, therefore proposal is acceptable.

The discount rate to be used when calculating NPV

It is widely suggested that the discount rate that should be used when calculating a project's net present value is the risk adjusted cost of capital. Much finance research and discussion has focused on this issue. Stated simply, the cost of capital is the average cost (stated as a percentage) of the capital funds raised by a company. Its calculation is illustrated in [Box 14.5](#).

Box 14.5**Calculating the cost of capital**

The cost of capital can be defined as a firm's average cost of long-term financing. It is widely used by companies as the discount rate to be used when calculating NPV.

Imagine the UK-based Trafalgar Hotel group has raised £1,000,000 in capital. £400,000 comprises long-term debt with an annual interest of 8 per cent. £600,000 has been raised in equity. Equity holders expect an annual return of 12 per cent on their investment.

From the table below it can be seen that calculating Trafalgar's cost of capital involves using weights that reflect the relative size of each of Trafalgar's long-term sources of finance (i.e., equity is 60 per cent of capital, debt is 40 per cent of capital). Multiplying the cost of each source of finance by its weighting, and summing the products, we find the Trafalgar group's weighted average cost of capital to be 10.4 per cent.

	Cost	Relative size of capital source (weighting)	Cost × Weighting
Equity (£0.6m)	12 per cent	0.6	7.2 per cent
Debt (£0.4m)	8 per cent	0.4	<u>3.2 per cent</u>
Cost of Capital			<u><u>10.4 per cent</u></u>

The 10.4 per cent cost of capital computed for the Trafalgar group in [Box 14.5](#) would be an appropriate discount rate to use when appraising one of the company's average risk investment proposals. If appraising a higher risk investment, a risk premium reflecting the higher risk should be added to the cost of capital. This is because investors are risk averse and they would want to be compensated via a higher return if the hotel group were to assume a more risky profile. Likewise, if a below average risk investment is under consideration, net present value should be calculated using a rate below the 10.4 per cent cost of capital. Readers seeking more information on the cost of capital will find extensive discussion devoted to the topic in most introductory corporate finance texts.

Concluding comments on NPV

In the interest of simplification, we have treated future cash flows as if they occur at the end of the year rather than during the year. This approach is widely taken and signifies that if the investment proposal under consideration fits the typical cash flow pattern of a large initial outlay followed by incremental net inflows, the net present value of the project will be slightly understated.

In theory, NPV is the preferred investment appraisal technique. If a company commits itself to a project with an NPV of \$5m, and the share market is working efficiently, the company's value should increase by \$5m. This is because today's value of all the company's future cash flows has been increased by \$5m.

5) Internal rate of return

Like the NPV, the internal rate of return (IRR) investment appraisal technique is also based on discounting cash flows that occur in the future. Calculation of the IRR is illustrated through a worked example in [Box 14.6](#).

Box 14.6

Finding an investment proposal's internal rate of return

Internal Rate of Return (IRR) = the discount rate that causes the present value of a project's inflows to equal the present value of its outflows, i.e., the discount rate that causes a project's NPV to equal zero.

If a proposed project's IRR is greater than the company's risk adjusted cost of capital, the project is acceptable.

An IRR example:

Imagine a proposed investment of \$20,000 will increase cash inflows by \$5,000 in each of the following 8 years. The company considering the investment has determined that it requires a 12 per cent return for this proposal to be acceptable.

The method taken to find the IRR of a proposed investment that generates future equal annual inflows (an annuity) involves setting the "NPV equation" equal to zero. We then determine what discount rate yields the zero NPV.

$$\begin{aligned}\text{IRR calculation:} \\ 0 &= -\$20,000 + \$5,000 (\text{PVA}_{\text{IRR}, 8\text{yr}}), \\ \$20,000 \div \$5,000 &= (\text{PVA}_{\text{IRR}, 8\text{yr}}), \\ 4 &= (\text{PVA}_{\text{IRR}, 8\text{yr}}),\end{aligned}$$

In PVA table, looking along the 8 year row, we find 4 corresponds to between 18 per cent and 19 per cent.

IRR = is between 18 per cent and 19 per cent
Project is acceptable as IRR > 12 per cent

This example represents a relatively easy IRR computation, as the cash inflows are in the form of an annuity. Where the inflows are not an annuity, a trial and error approach has to be adopted. This involves trying different discount rates until one is found that results in an NPV of zero. If you have an advanced pocket calculator, it might be able to compute the IRR, otherwise it can be a lengthy exercise!

Investment decision making

The IRR approach to investment appraisal has the following shortcomings:

1. In some cases, where a project's cash flows include future cash outflows, two different discount rates can result in an NPV of zero (i.e., two IRRs for one project).
2. In a single project, accept or reject situation, NPV and IRR will give the same indication (i.e., if $IRR > \text{required rate of return}$, NPV will be > 0). When ranking projects, however, NPV and IRR can give conflicting signals, i.e., the highest NPV project will not necessarily be the highest IRR project. If this situation arises, preference should be given to the NPV indication as it is the theoretically preferred technique.

Despite IRR's shortcomings (which are not as great as those apparent for ARR and payback), it is widely used in practice. This may be because managers can conceive of a proposed investment's projected rate of return more easily than its projected net present value.

6) Integrating the four investment appraisal techniques

In capital budgeting decision making, many hotels use more than one of the four investment appraisal techniques described in the previous section. Guilding and Lamminmaki (2007) surveyed Australian hotels and found that 21 per cent used two methods, 11 per cent used three methods and 13 per cent used all four methods described in this chapter.

Financial decision making in [action case 14.1](#) is designed to underline the fact that most organisations use more than one investment appraisal technique. In addition, it highlights that investment appraisal techniques can be used when considering a cost saving investment.

FINANCIAL DECISION MAKING IN ACTION CASE 14.1

The Chief Engineer and investment appraisal

Imagine the Bermuda Beach Hotel's chief engineer is deliberating whether to upgrade the hotel's old air conditioning system. Investment in the new system would be \$250,000 and it has been estimated that it will save the hotel \$75,000 in electricity and maintenance expenses in each of the next five years. The investment would be depreciated at the rate of \$50,000 per annum and have no salvage value at the end of its five year life. The hotel has a 10 per cent cost of capital and operates in a tax haven (i.e., no tax applies).

If the chief engineer knows that the hotel's finance department uses a breadth of investment appraisal techniques, he could review the financial viability of the proposed investment by computing its ARR, payback, NPV and IRR in the following manner:

Accounting Rate of Return (Annual profit generated \div Average investment $\times 100$)
$$ARR = (\$75,000 - \$50,000) \div \$125,000 \times 100 = 20 \text{ per cent}$$

Payback (time taken to recoup the cash invested in an asset)

$$\text{Payback} = \$250,000 \div \$75,000 = 3.33 \text{ (i.e., 3 years and 4 months).}$$

Net Present Value

$$\begin{aligned}\text{NPV} &= -\$250,000 + \$75,000 (\text{PVA}_{10\%, 5\text{yr}}) \\ &= -\$250,000 + \$75,000 (3.791) \\ &= -\$250,000 + \$284,325 = \$34,325.\end{aligned}$$

Internal Rate of Return

$$\begin{aligned}0 &= -\$250,000 + \$75,000 (\text{PVA}_{\text{IRR}, 5\text{yr}}), \\ \$250,000 \div \$75,000 &= (\text{PVA}_{\text{IRR}, 5\text{yr}}), \\ 3.33 &= (\text{PVA}_{\text{IRR}, 5\text{yr}}),\end{aligned}$$

In PVA table, in the 5 year row, we find 3.33 corresponds to between 15 per cent and 16 per cent.

IRR is therefore between 15 per cent and 16 per cent

From the above analysis, the chief engineer would have established that the air conditioning upgrade is financially justifiable as its projected NPV is positive and its IRR is greater than the cost of capital. Capital budgeting is not always conducted in a completely rational way, however.

It may be that the Bermuda Beach Hotel has a risk-averse general manager who is unwilling to authorise any capital expenditure that does not meet a predicted payback of less than three years. It may also be that the proposal is rejected as its submission coincides with a year of several other worthy investment projects. While the proposal may be financially justifiable, the chief engineer will soon realise that it cannot be approved if the hotel has insufficient capital funds available.

7) Summary

In this chapter we have looked at the main financial techniques that can be used to appraise investment proposals. You should now know:

- how to compute a proposed investment's accounting rate of return, payback period, net present value and internal rate of return,
- the relative merits of these four investment appraisal techniques,
- what is meant by the "time value of money",
- how present values can be determined using discounting tables.

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Problems

Problem 14.1

Describe the strengths and weakness of using the payback method in capital budgeting.

Problem 14.2

- Four investment appraisal techniques have been described in this chapter: 1) Accounting Rate of Return, 2) Payback, 3) Net Present Value, and 4) Internal Rate of Return. Which is the theoretically preferred investment appraisal technique?
- With respect to your answer to a), describe why the technique you have identified is the theoretically preferred investment appraisal technique?

Problem 14.3

Michael Johnson has been given the opportunity of investing in a financial security that will pay him \$600 in five years' time. Assuming similar risk investments earn an annual return of 8 per cent, what value should Michael put on this investment opportunity today?

Problem 14.4

- What is the value today of a stream of cash flows paying \$500 at the end of each of the next 8 years. Assume an interest rate of 10 per cent.
- What is the value today of a stream of annual cash flows paying \$500 at the beginning of each of the next 8 years (i.e., the first cash flow will occur today). Assume an interest rate of 10 per cent. (Helpful hint: remember that the PVA table is compiled on the basis that the first cash flow occurs in one year's time.)

Problem 14.5

Given the following two sets of cash flows, determine whether A or B has the higher present value. Assume an interest rate of 12 per cent. (Helpful hint: remember that the PVA table is compiled on the basis that the first cash flow occurs in one year's time.)

Year ^a	Cash stream A	Cash stream B
1	\$3,000	\$3,500
2	\$3,000	\$3,500
3		\$3,500
4	\$3,000	\$3,500
5	\$3,000	
6	\$3,000	
7	\$3,000	\$3,500
8	\$3,000	\$3,500

^a Assume that year 1 refers to a cash flow occurring in 1 year's time, year 2 refers to a cash flow occurring in 2 years' time, etc.

Problem 14.6

As part of its annual capital budgeting cycle, the Welsh Westmede hotel is deciding whether investment proposal A or investment proposal B is more financially justifiable. Investment proposal A requires an initial outlay of £36,000. It is estimated that £3,000 of this initial investment will be salvaged at the end of the investment's five year life. Investment B also requires an initial investment of £36,000. It is estimated that this asset will be salvaged for £7,000 in five years' time.

The schedule below presents the timing of estimated increases to Westmede's operating cash flows and also operating profit that would result if either investment were to be made.

	<u>Investment A</u>		<u>Investment B</u>	
Year	Net cash operating inflows	Increased operating profit*	Net cash operating inflows	Increased operating profit*
1	£14,000	£6,400	£5,000	£0
2	£12,000	£4,900	£7,000	£800
3	£10,000	£3,400	£15,000	£8,400
4	£8,000	£1,900	£18,000	£10,400
5	£8,000	£2,400	£13,000	£5,400

* Annual depreciation charges associated with the new investment will cause operating profits to be less than operating cash flows.

Required:

- Calculate the accounting rate of return for the two investment proposals.

Investment decision making

- b) Calculate the payback for the two investment proposals.
- c) Calculate the net present value for the two investment proposals assuming that the company has a required rate of return of 12 per cent. Assume that no tax implication will arise as a result of salvaging either of the proposed investments at the end of their useful lives.
- d) Which is the preferred investment opportunity?

Problem 14.7

Edmonton's Green Park Hotel is considering purchasing some new laundry equipment for \$200,000. Currently the hotel is outsourcing its laundry activities. The hotel's financial controller has estimated that if the laundry equipment is purchased, annual cash flows of \$50,000 will be saved in each of the next five years, at which time the laundry equipment will have a zero salvage value. The hotel has a 10 per cent cost of capital.

Required:

- a) What is the laundry equipment's approximate internal rate of return.
- b) In light of your answer to a), would you recommend that the hotel invests in the laundry equipment?

Problem 14.8

- a) Imagine you are trying to find the IRR of an investment project that has increasing estimated future cash inflows in each of the next eight years. You have tried a discount rate of 12 per cent and have discovered that this results in a positive NPV for the investment project. Explain whether the project's IRR is more or less than 12 per cent.
- b) Your hotel is considering two options with respect to a major overhaul of an existing restaurant. The restaurant will either be themed as an Italian restaurant, which will require the installation of a wood-fired pizza oven, or it will be themed as a British pub, which will require the installation of extensive bar facilities. It has been estimated that the Italian restaurant option will provide an IRR of 16 per cent and an NPV of \$420,000. It has also been projected that the British pub option will provide an IRR of 17 per cent and an NPV of \$350,000. From a financial perspective, explain which of the two options is preferable.

Problem 14.9

Viking Hotels, a large international hotel chain is structured according to seven geographically based divisions worldwide. Shortly after he joined the company, the Chief Executive of the European division informed General Managers in Viking's European hotels that he wanted an improved profit performance. This head of the European division believes in a decentralised policy and likes to give Hotel General Managers considerable autonomy in running their hotels as they see fit.

Eighteen months after the European division's Chief Executive took up his position, the performance of the group's Birmingham and Manchester hotels caught his eye. Both hotels had managed to increase their return on capital employed, following some expansion in the Birmingham hotel's assets and some contraction in the Manchester hotel's assets. The schedule below summarises the performance of the two hotels.

	Birmingham hotel		Manchester hotel	
	20X2	20X1	20X2	20X1
Net operating profit	£144,000	£60,000	£228,000	£288,000
Capital employed	£2,400,000	£1,500,000	£1,200,000	£1,600,000
Return on capital employed	6 per cent	4 per cent	19 per cent	18 per cent

In addition to providing a financial summary of their hotel's performance, each Hotel General Manager is expected to provide the division's Chief Executive with a written commentary that provides background to the financial performance. The following represents extracts taken from the commentaries provided by the General Managers in the Birmingham and Manchester hotels.

The Birmingham hotel General Manager commented:

We've managed to expand operations this year following the completion of the hotel's east wing extension. This expansion is already proving to be highly successful with operating profit more than doubling and return on capital employed increasing from 4 per cent to 6 per cent. I, together with the hotel's senior management, am confident that continued expansion is possible and that next year we will again be able to increase return on capital employed by a further percentage point to 7 per cent.

The General Manager of the Manchester hotel commented:

20X2 has been a year of rationalisation. We've managed to sell off some of the hotel's grounds where we used to operate a restaurant, bar and night club. This has had a positive impact on our return on capital employed. Further increases in return on capital employed may be possible as we may be able to phase out other below average rate of return activities.

Required:

In light of Viking's cost of capital, which is 12 per cent, explain whether the actions of the two hotels give cause for any concern. (Helpful hint: consider the return on capital employed of the assets acquired at the Birmingham hotel and also the return on capital employed of the assets sold at the Manchester hotel.)

Problem 14.10

Len, the head of general stores in a large Australian hotel complex has been asked to defend his "gut feel" that an upgrade in the currently used stores' computerised information system is warranted. He has visited a company operating the recently developed "Super store" software and has returned very favourably impressed. He now needs to prepare an investment proposal in a manner that will find favour with the finance group that closely scrutinises all capital expenditure proposals.

Len has determined that the upgrade will cost the hotel \$40,000 in new computer hardware. An annual software operating licence fee would also have to be paid. Len recommends that the licence agreement be entered into for 5 years, as the software company is providing an introductory special of "sign up for 5 years and pay a fee of only \$5,000 per annum – a saving of 10 per cent off the standard fee charge". Due to computer technology advancement,

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it is widely believed that the hardware will be worthless after five years. For this reason, the company's policy will be to view the investment as having a life of five years.

Len believes that the new system will enable him to reduce clerical time associated with inputting data on the old computer system by 25 hours per week. This clerical work has been performed by a casual employee who cost the hotel \$15,000 in wages last year. He also believes that the greater accuracy resulting from the improved record keeping that would be achieved will reduce the investment in average stock held by \$10,000.

Required:

- Ignoring tax, determine the payback of this investment.
- Assuming a 40 per cent tax rate and that computer hardware capital expenditure is written off straight line over a five-year period for tax purposes, use NPV to determine whether the proposed computer upgrade is justified. The hotel has a 10 per cent cost of capital.

Problem 14.11

The General Manager of Eating Extravagance Ltd has approached you seeking advice on two competing investment opportunities that he has under consideration. Each investment requires an initial investment of \$40,000 and will result in the following annual cash inflows over a six-year period.

Year	Alternative 1	Alternative 2
1	\$ 2,000	\$ 16,000
2	8,000	13,000
3	10,000	11,000
4	12,000	8,000
5	16,000	6,000
6	24,000	4,000

Required:

- Calculate the payback for each of the investment alternatives. Based on the payback method, state which is the preferred investment.
- Calculate the net present value of each of the alternatives, assuming the general manager uses a discount rate of 10 per cent in all NPV calculations.
- Based on your calculations, comment on which, if either, of the investment alternatives should be taken.

Problem 14.12: The Stellar Views' chapel case study

Introduction

This is a case that draws on a real investment opportunity that was under consideration in a large Australian hotel. The numbers stated in the case have been modified and also the name of the hotel changed in order to provide anonymity to the hotel concerned. The case is

presented partly as an illustration of the difficult nature of estimating future cash flows when a hotel is considering an investment in a new activity that is significantly different from its existing activities. Textbooks that provide an overview of capital budgeting too frequently give extensive consideration to the different appraisal techniques that can be used, but give little attention to the problem of generating a proposed investment's cash flow estimates.

Case description

The Stellar Views Hotel is located in a popular tourist region of Australia. The hotel comprises two adjoining buildings located near a beach. The main building is 25 storeys high, and the second is six storeys high. The smaller of the two buildings has a large flat roof with easy pedestrian access available from the large building. A small tennis facility comprising two courts has occupied this roof for the last ten years and the courts are now in need of a major overhaul. The tennis facility has been provided as a free service to hotel guests.

Stellar Views' management is considering dismantling the tennis facility and replacing it with a small 100-seater wedding chapel. The management believes there is considerable potential demand for this service, especially in light of the photo opportunities that the chapel's position would offer. In addition to catering to the local market, the chapel would be targeted towards the many Japanese visitors that come to the region to get married. Part of the rationale for the strong anticipated demand relates to a change in the type of wedding/reception/accommodation mix currently sought in the market for weddings. In earlier years it was typical for separate venues to be used for the wedding service, wedding reception and also the accommodation booked before and after the wedding. Following consultation with a Japanese tourist operator, Stellar Views' management has determined that couples are increasingly seeking a facility that can enable the wedding service, reception and accommodation to be provided at a single site. Convenience and cost issues are the main factors that lie behind this change. A single venue signifies that couples can benefit from packaged prices and also save on additional costs such as limousine hire and church decorators.

The hotel's management has commissioned a consulting group to develop estimates of the initial costs of building the chapel and also the demand for wedding ceremonies. It has been estimated that the chapel will cost \$1,000,000 to build. The schedule below presents the consulting company's demand estimates. The demand estimates are based on a ceremony fee of \$550. This ceremony price also covers the provision of floral arrangements, pew bows, topiary trees and a red carpeted aisle.

	Projected demand for ceremonies*						
	Jan. & Feb.	Mar. & April	May & June	July & August	Sept. & Oct.	Nov. & Dec.	Total
Local Market							
Friday	0	0	2	0	4	1	7
Saturday	6	16	14	7	40	10	93
Sunday	<u>0</u>	<u>2</u>	<u>4</u>	<u>0</u>	<u>8</u>	<u>1</u>	<u>15</u>
Sub-total	<u>6</u>	<u>18</u>	<u>20</u>	<u>7</u>	<u>52</u>	<u>12</u>	<u>115</u>

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	Projected demand for ceremonies*						
	Jan. & Feb.	Mar. & April	May & June	July & August	Sept. & Oct.	Nov. & Dec.	Total
Japanese inbound market							
Monday	0	1	2	0	2	0	5
Tuesday	0	3	10	0	8	3	24
Wednesday	0	3	10	0	8	3	24
Thursday	0	3	9	0	8	3	23
Friday	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>4</u>
Sub-total	<u>0</u>	<u>11</u>	<u>32</u>	<u>0</u>	<u>28</u>	<u>9</u>	<u>80</u>
Total ceremonies held	<u>6</u>	<u>29</u>	<u>52</u>	<u>7</u>	<u>80</u>	<u>21</u>	<u>195</u>

* The projected demand for ceremonies is based on a proposed ceremony fee of \$550.

The hotel has also projected that each ceremony will have a variable cost of \$100 and that annual fixed costs associated with maintaining the chapel and surrounding gardens will be \$10,000. Further, it has been estimated that 90 per cent of the Japanese inbound market ceremonies will result in a reception held at the hotel and extra guests staying at the hotel. It has been estimated that each Japanese reception held at the hotel will generate a contribution of \$2,000. For the 90 per cent of Japanese ceremonies that will result in extra guests staying at the hotel, it has been estimated that each ceremony will result in an additional \$1,000 of accommodation profit earned by the hotel.

With respect to the wedding ceremonies booked by locals, it is estimated that 20 per cent will result in a reception at the hotel and these receptions will contribute \$5,000 per reception. Further, it is estimated that the average local market ceremony will result in 15 extra room sales which will generate an additional contribution of \$100 per room. The hotel's financial controller has determined that the viability of this chapel investment will be assessed using a 14 per cent discount rate.

Required:

- Prepare an NPV analysis of the proposed chapel investment for Stellar Views' management. Assume that the hotel's management feels that the projected demand schedule presented above will apply for the first five years following the chapel's construction. In addition, it feels the contributions earned from receptions and accommodation associated with ceremonies will be constant in the chapel's first five years. When calculating NPV, the management has a policy of not looking at cash flow estimates beyond a five-year period.
- Describe whether you see the proposed chapel investment as risky. With respect to the discount rate that should be used when calculating the chapel's NPV, do you feel Stellar Views should use its cost of capital?
- What sources of information do you feel the hotel might use with respect to developing its initial estimate of the cost of building the chapel?

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Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. the most appropriate financial objective for companies to pursue,
2. what is meant by “agency theory”,
3. problems surrounding the way that a manager’s goals can differ to the goals of a shareholder,
4. how goal incongruence can arise when hotel owners engage the services of a hotel management company,
5. the basic workings of share markets and the nature of a stock market index,
6. how to value a share based on the projected earnings stream that will be provided by the share,
7. the procedure taken by companies in paying dividends,
8. distinct dividend payment policies that a company can choose to pursue,
9. how fixed costs contribute to a company’s operating and financial leverage,
10. how higher levels of leverage signify greater risk for a company.

1) Introduction

This chapter provides a broad sweep across several financial management topics that are not addressed elsewhere in this book. It will demonstrate how managers pursuing a goal of maximizing earnings per share may well not be serving the best interests of shareholders. Associated with this, it will also show how managers may well have personal career goals that do not align well to the goals of shareholders. The distinctiveness of shareholder and manager goals will be examined using a conceptual approach that is widely referred to as “agency theory”. Agency theory will also be employed to demonstrate goal incongruence issues that can arise when a hotel owner engages the services of a hotel operator.

We will also briefly explore the nature of share trading and factors that affect a share’s value. Related to these factors, we will examine the procedure taken by companies when paying dividends and also what alternative dividend payment policies they may adopt. Finally,

the concept of leverage will be introduced. Leverage concerns the way that a greater proportion of fixed costs lead to a greater volatility in earnings provided to shareholders. As volatile shareholder earnings represent a manifestation of risk, we can see that a company's level of leverage carries implications for its share value (higher risk levels are perceived negatively by the stock market). We then consider what steps a company can take should it wish to increase or decrease its level of leverage.

2) What should be the over-riding business objective in financial management?

Maximize profit (EPS)?

Many managers think that the over-riding financial objective of companies is to maximize profit. It is common to measure a company's profit performance in terms of **earnings per share** (EPS). EPS is calculated by taking a company's earnings (profit) available to shareholders and dividing it by the company's number of shares. This EPS calculation could be done for any period of time; however, it is most usually calculated quarterly (for a three month period), or a year.

As EPS is a widely quoted company performance indicator, it is understandable that many managers will hold the maximization of EPS as their number one financial management objective. We will now see, however, several reasons why this objective is inappropriate. Three factors signifying that pursuit of EPS maximization is an inappropriate goal are: 1) EPS fails to tightly capture the timing of financial returns; 2) EPS fails to capture cash flows; and 3) EPS fails to recognize risk. Each of these EPS failings are now explained in turn.

With respect to EPS's shortcoming that stems from the **timing of financial returns** issue, note that EPS indicates the earnings per share (profit) earned by a company over a period of time. For any period of time, there is scope for the earnings to be made early or late within the period. This issue of EPS timing is explained via a worked example in [Box 15.1](#).

The second EPS shortcoming concerns the **failure of EPS to capture cash flows**. EPS is based on an accounting system's calculation of profit; it is not based on an accounting system's measurement of cash flow. We saw in [Chapter 13](#) how profit is not the same as cash flow when we developed a cash flow budget for the BackWoods Retreat, and found that in a January–March period, the business was projected to earn a profit of \$92,800, while at the same time suffering a bank balance decline of \$85,300.

How can cash flow depart from profit? Well, a significant factor contributing to the difference between profit and cash flow is the way accountants account for fixed assets. If we pay \$500,000 for a fixed asset, cash will immediately decline at the time we pay for the fixed asset; however, the reported profit in the year the asset is purchased will not be affected by nearly as much. If it is determined that the cost of the asset is to be depreciated over ten years, in the year that the asset is purchased, reported profit will only be reduced by the \$50,000 annual depreciation charge for the asset (assuming the asset was purchased at the beginning of the year), not the \$500,000 asset cost. This signifies that in the year the asset is purchased, a \$450,000 discrepancy arises between reported profit (affected by a \$50,000 depreciation charge) and actual cash flow (affected by a \$500,000 payment to the fixed asset supplier).

Box 15.1

The importance of EPS return timing

This worked example shows the importance of the time when earnings per share (EPS) returns are achieved by a company.

Imagine that the Fortress Hotel Group and the Soft Pillow Hotel Group are similar sized hotel management companies with the same number of shares outstanding. Based on the following data, which of the two hotel management companies do you feel has performed better in terms of EPS?

Company	Earnings per share				
	Year 1	Year 2	Year 3	Year 4	Total
Fortress Hotel Group	\$1.70	\$2.00	\$2.40	\$2.80	\$8.90
Soft Pillow Hotel Group	\$2.85	\$2.40	\$2.00	\$1.60	\$8.85

In raw terms, clearly the Fortress Hotel Group has a better EPS performance, as the final column shows us that its overall EPS over the four-year period is \$0.05 greater than the EPS achieved by the Soft Pillow Hotel Group.

Note, however, that the Soft Pillow Hotel Group provides higher EPS in the early years. Now, remember the time value concept of money that was covered in the previous chapter. This concept holds that \$1 received today is worth more than \$1 received in a year's time. Imagine two investors own the same number of shares in the two companies and the companies paid out their entire earnings as dividends. If both shareholders reinvested these amounts in a bank account earning 5 per cent interest, the one who had invested in the Soft Pillow Hotel Group would have accumulated a greater wealth following the payment of the fourth dividend. This signifies that a rational investor would prefer the stream of returns provided by the Soft Pillow Hotel Group over the stream of returns provided by the Fortress Hotel Group.

This clearly shows that high returns received early are preferable to high returns received late. This simple example highlights the importance of considering EPS timing, not just the absolute size of EPS.

So, which should be held as the more important financial management objective: the maximization of cash flow or the maximization of profit? A hint of an answer lies in the fact that in the previous chapter we noted that maximizing net present value is the theoretically preferred investment appraisal technique. Fundamental to the net present value investment appraisal approach is the principle that we should maximize today's value of the expected future cash flows (not profits!) resulting from a capital expenditure. While an increased profit projection might suggest that better times are ahead, the realization of a better time occurs only once operating cash inflows increase. The real return that shareholders earn from their investment is the cash dividends that they receive. In concrete terms, it is

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not profits that finance the payment of cash dividends, it is a company's operating cash flow that funds the payment of dividends. Remember, profit is no more than a "performance story" in which arbitrary factors such as depreciation play a significant part. There is no arbitrariness when determining cash flow, however. Money at the bank is very real in the sense that it can be objectively verified, and it is the money in a company's bank account that a company uses to pay dividends. In light of this, it is widely agreed that in order to best serve shareholders, companies should focus on maximizing the present value of their projected cash flows.

The third EPS shortcoming concerns the fact that **EPS fails to recognize risk**. A fundamental principle in finance theory concerns the risk/return trade-off. This principle generally holds that greater returns can only be made by taking on more risk. If you ever seek personal financial investment advice, invariably your financial advisor will ask you what degree of risk you can live with. In the world of finance, greater risk stems from more uncertain returns, i.e. greater variability in returns and a greater downside of potentially losing money (a greater chance of experiencing a negative return in any given year). The more risk you are willing to accept in your investment portfolio, however, the greater the return you can expect to earn over the long term. An investment held over the last 100 years in an interest bearing account (low risk) would have earned much less than an average risk portfolio investment held on the stock market (higher risk than an interest bearing account). However, while a share investment earns more over the long term, it will also provide much greater variability in returns, with more years providing negative returns compared to an interest bearing investment.

Return and risk have conflicting impacts on the price of a share. If a company starts to make more risky investments as part of an effort to increase returns, two competing factors affecting its share price will result. Any increased cash flows resulting from the greater risk strategy will have a positive impact on share price. The increased uncertainty associated with the greater risk, however, will have a negative impact on share price, as investors are risk averse (i.e., they do not like risk). A hotel company may manage to increase its EPS following its diversification into the spa sector of the hotel market. The share market may see this as increasing the risk profile of the company, however, if it sees spa operations as more risky than the company's conventional operations. If the negativity associated with greater perceived risk outweighs the positivity resulting from increased EPS, the company's share price will drop during a period in which its EPS increases. This clearly shows that the maximization of EPS does not necessarily work in the interest of shareholders.

In addition to the above shortcomings with EPS, you should also be aware that there is a particular problem in any attempt to use EPS as part of a cross-company comparison. Imagine that in a particular year, EPS for the ABC company is \$4, and EPS for the XYZ company is \$2. We cannot conclude from this that the ABC company is more profitable than the XYZ company. Firstly, note that if the ABC company has 100 issued shares and the XYZ company has 1,000 shares, net profit for ABC must be only \$400 (100 shares \times \$4) compared to XYZ's \$2,000 profit (1,000 shares \times \$2). Secondly, imagine that during 20X1, shares in ABC traded for around \$50 while shares in XYZ traded for \$10. The earnings when stated as a return on the owner's investment (this is sometimes called the earnings yield and is calculated by dividing EPS by the share price) is 8 per cent for the ABC company ($4 \div 50 \times 100$), and 20 per cent for the XYZ company ($2 \div 10 \times 100$). EPS can be usefully used, however, as part of a trend analysis of a single company (assuming the number of shares issued remains constant), and EPS is particularly useful when combined with share price to give us the **price earnings ratio** (PE ratio).

The PE ratio is computed as follows:

$$\text{Price/Earnings (P.E.) ratio} = \text{Market price per share} \div \text{Earnings per share}$$

Unlike EPS, the PE ratio can be used as part of a cross-company analysis. A high PE for a company relative to its competitors in the same industry can be caused by either of the following two factors:

1. The investing community expects an increase in the company's EPS in the future and this has resulted in increased demand for its shares which, in turn, has increased the share price (past earnings are only of interest to the investor to the extent that they provide an indication of expected future earnings),
2. The investing community perceives relatively low risk in the company. As investors are averse to risk, increasing levels of risk will result in decreasing demand for the share, which, in turn, results in a decreased share price.

Shareholder wealth maximization?

It is widely held by managerial finance commentators that the goal of a company's managers should be to maximize the wealth of shareholders. Shareholder wealth is maximized when share price is maximized. This signifies that managers need to strike an optimal balance in managing their company's risk/return trade-off that has just been described, as both risk and return carry implications for a company's share price.

While the maximization of shareholder wealth has generally been accepted as the most appropriate corporate financial goal, recent years has seen greater recognition given to other company stakeholders. These other stakeholders include employees, customers and also the broader society. Broader society has in particular become a more significant stakeholder group in light of a groundswell increase in environmental awareness. Companies are now being held much more accountable for any damage that they may inflict on the physical environment. This broadening of responsibility to stakeholders other than shareholders has seen the rise of a broader accounting initiative that has become widely referred to as "triple bottom line" reporting. While a company's annual reports have traditionally focused primarily on financial performance reporting, a growth in triple bottom line reporting has seen a broadening of the focus to also include social performance and environmental performance reporting. Social performance reporting focuses on a company's impact on society, which includes customers, employees, suppliers and the broader community. Environmental performance reporting focuses on a company's impact on the environment, which includes land, water, air, ecosystems and also people.

This broader stakeholder perspective should not be seen as displacing the shareholder wealth maximization objective, rather it can be viewed as highlighting other factors that need to be considered by managers as they pursue shareholder wealth maximization. Considered in this manner, the corporate world's increased importance attached to a range of stakeholders, beyond shareholders, has placed some constraints on the actions a company's managers can take when seeking to maximize share price.

3) Agency issues

In this section we will review agency theory in general and then consider the particular agency relationship that arises when a hotel owner engages the services of a hotel management company to manage its hotel.

Agency theory

The discussion above has led us to the idea that managers should pursue objectives that are in the interests of a company's shareholders. The extent to which managers actually manage companies in ways that are truly in the interests of their company's shareholders is questionable, however, and is an issue that has been the subject of much financial research. Much of this research has been built around the **agency theory** model. Agency theory concerns the relationship between one party that wants to have a job done and a second party that is engaged by the first party to perform the job. The party engaging the second party is generally referred to as the "principal", and the party that is engaged to perform the job is called the "agent". Examples of principal/agent relationships include:

- shareholders (acting as principals) appointing a board of directors (acting as agents) to run a company;
- a board of directors (acting as principals) employing a hotel general manager (acting as an agent) to run a hotel;
- a hotel general manager (acting as principal) appointing an F&B manager (acting as an agent) to run an F&B department.

From these three examples, it can be seen that a large organisation comprises a multitude of agency relationships. Many of these relationships mirror what we find in a standard organisational hierarchy. This signifies that a depiction of many organisational agency relationships is captured in an organisational chart (e.g., see [Figure 9.1](#) in [Chapter 9](#)). You should now read through [Box 15.2](#) to develop your appreciation of how you encounter agency relationship challenges in your everyday life.

Box 15.2

Everyday agency relationship challenges

In your everyday life, you experience many agency relationships. If you have a job, you will likely have a boss. Your boss is concerned with the fundamental agency issue of finding ways to monitor your performance in order to ensure you are performing the job to an appropriate standard. Although you might not appreciate it, you have also likely had experiences of acting as a principal. Whenever you engage someone to provide you with a service, the service provider is acting as an agent and you are cast as the principal.

Interesting agency issues arise for you every time you go to see a doctor or a dentist. Most of us tend to think of our doctor or dentist as in a superior position; after all, they are well qualified and have a position that is held in high standing by society. Despite this high standing, both doctors and dentists are acting as agents for their patients as they are providing a paid-for service. This is where we come to the interesting aspect of this agency relationship. Are you in a strong position to make a judgement on the quality of the service provided to you by your doctor or dentist? Do you know whether you

should change your medical or dental service provider due to the quality of the service that they provide? Your likely answer to both of these questions will be “No”. Now, when we recognize that there are bound to be some doctors and dentists who provide an above average level of medical or dental service, what can you do to ensure you have a doctor or dentist who falls into this above average category? Here lies the classic agency problem. The principal can have trouble determining the quality of the service provided by their engaged agent.

It is because of this agency problem that occurs when engaging the services of highly trained professionals that considerable agency costs are expended in an attempt to inculcate professionals with a conscientious approach to their work, and steps are taken by medical and dental professional associations to promote ethical behaviour amongst their respective memberships. Expending resources on recruiting “the right people” for medical and dental training, then expending resources on promotion of a conscientious ethic followed by on-going monitoring of whether professionals are maintaining suitably high ethical standards are all highly costly activities that society, as a whole, has to bear. These costs can be described as “agency costs”, as they are incurred in an effort to protect you and I from the dangers of being incapable of effectively monitoring the performance of our medical and dental service-providing agents. Society has determined that these are appropriate costs to incur in order to achieve greater assurance over the quality of medical and dental service provision.

Just so you can see that this agency problem is much less in many other contexts, consider the situation that arises if you decide to employ someone to spend three hours per week cleaning your house. There are several things you can do to appraise the quality of the house cleaning service that you are purchasing. At the end of the three-hour cleaning shift, you can look around the house to assess how well it has been cleaned. You could also arrange to be home when the house cleaner is doing their work and you could keep an eye on how busy they seem to be and assess what exact activities they engage in during the three-hour period. In light of the fact that you can fairly effectively gauge the quality of the service provided by a house cleaner, it is a working relationship that does not present significant work monitoring agency challenges.

In the company context, the agency relationship that is of particular interest to us concerns the role of managers, acting as agents, in serving the interest of shareholders, acting as principals. There is a fundamental agency problem here, as many managers may well be more focused on pursuing their own personal goals rather than the shareholder wealth maximization goal. Personal goals of managers that do not necessarily align well with company goals include seeking to increase personal wealth, leisure time and job security and avoiding stressful job assignments. [Box 15.3](#) provides an elaboration of how attitude to risk can be a source of different objectives pursued by managers and shareholders.

Box 15.3

Misalignment of manager and shareholder goals

The issue of risk provides us with a clear-cut example of how the interests of the managers and shareholders of a company can be misaligned. Let's return to the example of a company considering the merits of broadening its operations into the spa sector of the hotel market. Imagine that two companies have decided to diversify their operations into this potentially lucrative sub-sector of hotel operations. Imagine that Company A is successful in managing this diversification and that, as a result, its value increases by \$1.5 million. Imagine also that Company B does not manage the diversification as successfully and, as a result, its value declines by \$1 million.

Now, let's imagine that you own 1 per cent of the outstanding shares in both companies. Should both companies make the investment and commitment necessary to diversify into spa operations, your share portfolio will increase in value by \$5,000 (1 per cent of Company A's \$1.5 million increased value minus 1 per cent of Company B's \$1 million decline in value). As, in advance of the diversification, it would have likely been impossible to tell whether one, both or neither of the two companies would be successful in making the diversification, with the benefit of hindsight you should be satisfied that both made the diversification decision, as it has resulted in a \$5,000 increase in your wealth. But note that you have managed to lessen the risk of your total investment by investing in more than one company. You have benefited from what financial commentators refer to as the elimination of "diversifiable risk". Diversifiable risk refers to that portion of an investment risk that can be eliminated by holding a portfolio of shares. Diversifiable risk relates to randomly occurring, company specific events such as a labour strike, a law suit or loss of a key account. Your willingness for a company you have invested in to take on risk would be greatly diminished if it was the only share that you owned, as you would then have "all your eggs in one basket". It is safer and less risky to have two or more baskets.

Now, imagine you are a manager working in one of these two companies. In advance of making the decision to diversify into the spa sector, you would know that there is some downside risk involved, as the diversification may prove to be unsuccessful. Unlike the rational shareholder who reduces risk by holding a portfolio of shares, you cannot diversify away company specific risk by holding a portfolio of jobs. For most of us, we can only hold down one full time job at a time. If the company where you work were to suffer a major downturn, you might lose your job, lose your capacity to pay your mortgage and severely damage your career prospects. The fact that you have one job signifies that you have all your eggs in one basket, and as a result you are particularly careful not to take any steps that might result in your basket tipping and the loss of your eggs.

This example shows how many managers can be expected to be more averse to taking on risky investments than shareholders. To lessen the propensity of managers acting in a risk-averse manner, some companies reward their managers for pursuing successful new initiatives by providing them with performance-based bonus shares. The issuance of company shares to a manager is a clever strategy, as it draws managers closer to a perspective that is reflective of the perspective held by shareholders.

Hotel management contracts – an agency issue particular to the hotel industry

Many large hotels are not managed by their owner. Worldwide, many hotel owners engage the services of a specialist hotel management company to manage their hotel. Research reveals that in many countries there are now more hotels that are managed by way of a contractual arrangement between the owner and a hotel operating company than there are hotels that are managed by their owners (Turner and Guilding 2010). Examples of well-known hotel management companies that manage hotel chains worldwide include the Accor, Hilton, Marriott and Sheraton companies. These companies specialize in operating, but not owning, hotels.

Where a hotel management company is engaged to manage a hotel for an owner, we can see that an agency relationship arises between the owner (acting as principal) and the management company (acting as agent). Under the typical contractual arrangement, the owner retains ownership of all of the hotel's assets and earns any profits made by the hotel, after deduction of the hotel operator's fee. Fees earned by hotel operating companies are generally linked to the level of sales and profit achieved by the hotels that they operate. More specifically, the fee received by an operator is typically:

- about 3 per cent of the revenue earned by the hotel that the operator manages (widely referred to as the “base fee”), plus
- about 10 per cent of the operating profit earned by the hotel that the operator manages (widely referred to as the “incentive fee”).

Turner and Guilding (2010) show that this basis for determining the management fee to be paid to the hotel manager can create particular agency problems. These problems appear to be most evident in connection with capital budgeting decision making. As the hotel operating company is closely involved in the operations of a hotel, management in the operating company will be particularly aware of what hotel assets are most in need of major refurbishment or replacement. Accordingly, the hotel operating company will play a key role in identifying to the owner aspects of a hotel that are most in need of capital expenditure. Given that a hotel management company will be motivated by a desire to maximize their fee, we need to explore whether the capital expenditure ideas that they are motivated to promote are actually consistent with maximizing net present value (NPV) for the owners.

Factors suggesting that the way operators' fees are determined might cause operators to promote capital expenditure projects that are not necessarily consistent with maximizing an owner's NPV include:

1. The revenue-determined “base fee” represents an encouragement to operating companies to promote large capital expenditures, which result in large increases in revenue, regardless of a project's predicted profitability.
2. The revenue-determined “base fee” provides a hotel operating company with no incentive to recommend capital expenditure projects that will trigger large cost savings but have no impact on revenue. An example of such a capital expenditure project would be the decision to upgrade a hotel's air conditioning system. A hotel's old air conditioning system may have become inefficient and consume large amounts of electricity relative to the amount of cool air produced. This old air conditioning system may also be proving costly

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to maintain due to frequent breakdowns and system malfunctioning. This suggests that replacement of the old system will result in a considerable saving in electricity and maintenance costs. These cost savings may be sufficiently large to signify that a new air conditioning system capital expenditure outlay would provide a high positive NPV for the hotel owners. Yet the revenue determined “base fee” that is paid to hotel operators provides them with no incentive to identify and promote capital expenditure projects that provide cost savings but no increases in revenue. Accordingly, when a hotel owner asks its hotel operating company to draw up a wish list of suggested capital expenditure project proposals for its property, a potential high NPV air conditioning system up-grade capital expenditure idea may stay in the bottom of a drawer and never be brought to the owner’s attention. The likelihood of such a scenario occurring is heightened by the fact that an owner’s funds available for capital expenditure are generally limited.

3. The profit-determined “incentive fee” will encourage hotel management companies to promote projects that will generate a high profit, in an absolute sense, without giving due consideration to the amount of investment necessary to generate the profit. Consider the case of a hotel appraising two mutually exclusive projects (mutual exclusivity signifies the hotel owner cannot invest in both projects). Project A is projected to provide an annual profit of \$100,000 and will require an initial investment of \$2,000,000. Project B is projected to provide an annual profit of \$90,000 and will require an initial investment of \$1,000,000. If an operating company earns a profit-determined incentive fee, it will prefer Project A, as it provides \$10,000 more profit than Project B. However, Project B provides a 9 per cent ROI ($\$90,000 \div \$1,000,000 \times 100$) which is higher than Project A’s 5 per cent ROI ($\$100,000 \div \$2,000,000 \times 100$). Based on ROI, the hotel owner would prefer Project B. This highlights the problem of attempting to interpret a profit number in isolation of the investment amount required to earn the profit.

These three distinct examples of how a potential divergence can arise between the interests of a hotel owner and a contracted hotel operator highlight the extent to which hotel management contracts provide incentives for hotel operators to promote capital expenditure projects that do not necessarily optimize the interests of hotel owners. Clearly there are deficiencies with respect to the extent that conventional hotel management contracts promote goal congruency between hotel owners (the principal) and hotel management companies (the agent). Goal congruency refers to the extent that the goals of one party are well aligned and consistent with the goals of another party. The significance of this problem becomes particularly apparent when we recognize that a hotel operator is in a powerful position to influence what capital expenditure projects will be invested in by a hotel owner, as a hotel operator can decide not to submit to a hotel owner those capital expenditure ideas that fail to maximize the operator’s interests.

This goal congruency deficiency between hotel owners and operators with respect to capital budgeting decision making is a good example of a widespread hotel industry agency challenge. [Box 15.4](#) demonstrates that the combination of a revenue-determined “base fee” with a profit-determined “incentive fee” does not solve this goal congruency problem. As explained in [Box 15.4](#), it appears this agency problem would be lessened if, instead of a hotel operator’s fee being determined by revenue and profit, it was based on ROI or residual income (the calculation of “residual income” was explained in [Chapter 9](#)).

Box 15.4

Problem with management contract fee determination

Imagine a hotel operator is considering which of two mutually exclusive potential investment opportunities, Project A or Project B, it will promote to the owner of a hotel it manages. Project A will require an initial investment of \$1,000,000 and Project B will require an initial investment of \$4,000,000. The projected revenue and profit projections associated with the two investment alternatives are outlined below.

	Project A		Project B	
	Revenue	Operating profit	Revenue	Operating profit
Year 1	\$500,000	\$200,000	\$800,000	\$320,000
Year 2	\$500,000	\$200,000	\$800,000	\$320,000
Year 3	\$500,000	\$200,000	\$800,000	\$320,000
Year 4	\$500,000	\$200,000	\$800,000	\$320,000
Year 5	\$500,000	\$200,000	\$800,000	\$320,000

Based on a typical traditional fee incentive of 3% of revenue and 10% of operating profit, we find that the operator would prefer Project B as it would result in an increase in the operator fee revenue of \$56,000 (3% of \$800,000 + 10% of \$320,000) per annum for the five years of Project B's life. This is more than the \$35,000 (3% of \$500,000 + 10% of \$200,000) projected incremental fee revenue that would result if Project A were pursued.

On an ROI and RI basis, it can be seen that project A provides the higher return, however. Project A provides an ROI of 20% ($\$200,000 \div \$1,000,000 \times 100$) per annum and Project B provides an ROI of 8% ($\$320,000 \div \$4,000,000 \times 100$) per annum. If the hotel owner imputes a 10% required rate of return (based on its cost of capital) charge when calculating RI, we see that Project A has a positive RI of \$100,000 ($\$200,000 - (0.1 \times \$1,000,000)$) per annum and Project B has a negative RI of \$80,000 ($\$320,000 - (0.1 \times \$4,000,000)$) per annum.

If the operator were to be paid an incentive that is set at (say) 40% of RI, pursuit of Project A would result in an increase in the operator's fee revenue of \$40,000 (40% of \$100,000) per annum and pursuit of Project B would result in a decrease in the operator's fee revenue of \$32,000 (40% of -\$80,000) per annum.

A comparison of the projected ROIs for the two projects and the fact that Project B fails to satisfy the owner's 10% required rate of return provides a persuasive case that the hotel owner would prefer to take

Project A. Capital expenditure goal congruency is promoted if the operator is remunerated based on RI (Project A has the higher RI), but it is not promoted if the operator is remunerated based on a revenue and profit incentive, as the operator would have an incentive to promote Project B.

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4) Trading shares in publicly listed companies

When a company is first being established, it can raise its initial share capital by either making a public offering that involves selling new shares to the public, or making a private placement that involves selling new shares to a single investor or a group of investors. When making an initial public offering of shares, the new company develops a prospectus, which is a document that describes the details of the offering, key dates associated with the offering and also its key financial statements. So purchasing newly issued shares is one way for you to buy shares in a company. The market for new shares is called the primary market.

You can then sell the shares on a stock market, which is, in effect, a second hand market for portions of equity ownership in companies. We don't tend to refer to "equity portions", however, as you are much more used to hearing such portions of equity ownership referred to as "shares". So a second way for you to acquire shares in a company is for you to buy them on a stock market. Some of the largest stock markets in the world are the London, NASDAQ, New York and Tokyo stock exchanges.

You have most likely heard of a **stock market index**. This can be thought of as an indicator of the average price of all shares (or a particular set of shares) on a stock market. Imagine we select 100 companies as being reflective of all the companies on a particular stock market. We could then identify a base day and say that on this day, the price of these 100 companies' shares, in combination, is going to be represented by an index that we chose to set at 1,000. Now, if at the end of the following year, half the shares represented by the index have increased by 10 per cent and the share price for the other half is unaltered, on average the shares will have increased by 5 per cent. This will result in a 5 per cent increase in the stock market index, i.e. over the year it will have risen from 1,000 to 1,050. You will hear financial commentators sometimes say something like "the local stock market's index increased by 50 points today which represents an increase of 1 per cent". This means that at the end of the day, on average, the value of shares on the stock market is 1 per cent more than what they were trading for at the end of the previous day. The reason that we have stock market indexes is simply to enable stock market commentators to refer to a single number when describing the average movement in share prices of all companies on a particular stock exchange during a particular time period.

5) Share valuation

From a theoretical perspective, we can say that the value of a share is equal to the present value of all future benefits that the share will provide to its owner. The most obvious financial benefit that shareholders receive is the stream of dividends that a company pays to its shareholders. Using the “PVIF” notation that was introduced in the last chapter, this valuation approach can be stated as an equation in the following way:

$$\text{Share value} = D_1 (\text{PVIF}_{r, 1\text{yr}}) + D_2 (\text{PVIF}_{r, 2\text{yr}}) + D_3 (\text{PVIF}_{r, 3\text{yr}}) + \dots \text{etc.}$$

where:

D_1 = dividend expected in year 1; D_2 = dividend expected in year 2; etc.
 r = required rate of return for shares in the company being valued.

It is widely accepted by stock market analysts that investors are risk averse. This factor lies behind the inclusion of “ r ” (required rate of return) in the equation above. Shareholders have a higher required rate of return for a share that is perceived to be relatively risky. In effect, investors need to be compensated if they purchase a share that is perceived to be risky. Greater levels of risk will increase “ r ”. If “ r ” is increased, but everything else in the equation is kept the same, the share value (share price) will decrease. This signifies that all other things being equal, shares with higher risk will command a lower price.

Imagine it has been projected that Company A and Company B will provide the same dividends per share into the foreseeable future. This statement, considered in isolation, suggests that the two companies’ shares should have the same value. Now imagine that Company B has a greater proportion of debt in its long-term capital, compared to Company A. This higher debt will make likely returns to Company B shareholders more volatile (see leverage discussion below) and also increase the likelihood of Company B facing bankruptcy. This signifies that Company B will be perceived as more risky and, as a result, shareholders will require a higher expected rate of return if they are to invest in Company B. The higher “ r ” in the valuation model for Company B’s shares will have the effect of reducing the value of Company B’s shares relative to Company A’s shares. As you will therefore be able to purchase Company B’s shares for a lower price than Company A’s shares, the return on your investment will be greater if you purchase Company B’s shares (don’t forget that it has been predicted that Company A and Company B will provide the same dividends per share into the foreseeable future). You may wonder why wouldn’t all investors buy Company B’s shares if it will provide a relatively higher return on its shares’ purchase price? This question takes us back full circle – it is because investors do not like the greater risk that they perceive in Company B.

Now you might be thinking that the share valuation formula provided above will not work for a share that you plan to sell in two years’ time. This will mean that after two years you will not be receiving the dividends any more. In this situation, the cash flows that are relevant to you are the dividends that you will receive in the next two years, plus the share’s sale price in two years time. The valuation model still works for this situation. This is because the share valuation in two years’ time will be determined by discounting the future dividends that share purchasers will be expecting at that time. Stated in another way, your share in two years’ time will have the same value as the present value of the projected dividends at that time. So, whether you plan to hold a share for the next 20 years or just two years, the present value of

the inflows you can expect from owning the share are the same, i.e. the present value of all future dividends projected for the share.

A technique that enables you to value a share that is projected to continue providing a constant annual dividend well into the future is described in [Box 15.5](#).

Box 15.5

Valuing a share that provides a consistent annual dividend

There is a simple formula (often referred to as the “perpetuity formula”) that can be applied if it is estimated that a share will continue providing the same annual dividend every year indefinitely into the future.

An investment that provides a series of cash flows that are expected to go on forever is referred to as a “perpetuity”. The formula for finding the value of a financial investment that will perpetually provide the same cash flow return every year simply involves dividing the annual cash flow return by the per cent required rate of return for the investment (stated as a decimal). Applying this formula to a share valuation situation gives us the following formula:

$$\text{Value of share that provides perpetual annual return} = \frac{\text{Annual return}}{\text{per cent required annual return (stated as a decimal)}}$$

Imagine the shares of the SteadyHotel Management company have been paying annual dividends of \$2 for many years and analysts believe this dividend pattern will continue indefinitely into the future. Also, imagine SteadyHotel’s shareholders’ required rate of return is 10%. This suggests SteadyHotel’s shares represent a perpetuity and we can provide a valuation of the SteadyHotel Management company’s shares by applying the above formula as follows:

$$\text{Steady Hotel's share value} = \$2 \div 0.1 = \$20$$

Now you may be asking that with these valuation approaches, why is it that share prices are constantly moving and can even move as far as 10 per cent or more in a single day when a stock market crash occurs. Significant stock market crashes occurred on 29th October 1929, 19th October 1987 and 29th September 2008. The reason that share prices constantly change is investors’ outlook on risk is constantly evolving as it is affected by events occurring around the world at global and local levels. If a company announces the redundancy of 100 employees, this newsworthy event can be expected to affect the

investing communities' expectations with respect to future dividends in that company and maybe also the dividends of competing companies. This would also likely affect investors' assessment of the risk associated with the company and, as a result alter the "r" (required rate of return) for the company. News of an unexpected increase in unemployment in a large economy such as the US can trigger a ripple effect that can have tsunami-like implications. This ripple can run a long way, affecting investor confidence around the world and carrying a quick negative impact on share prices quoted on stock markets internationally.

6) Dividends

In this section we will explore the dividend payment procedure and also how the declaration of a dividend impacts on a company's share price. We will then examine issues surrounding the development of a company's dividend payment policy.

Dividend payment procedure

The stages involved in a company paying a dividend are:

1. The company announces the per share dividend amount and the date when investors must be registered as owning shares (referred to as the "date of record") in order to be entitled to receive the dividend payment.
2. Following the company's announcement of the dividend payment intention, the share enters a period of being traded "cum-dividend", which means "with dividend". If you purchase a share during the time that it is trading cum dividend, you will be entitled to receive the per share dividend payment that has been announced.
3. Shares will start trading "ex-dividend" four days before the date of record. As shares are constantly being bought and sold, this four-day period is required to provide the company with time to update its record of share owners. Investors purchasing a share during an ex-dividend period will have purchased it too late to be entitled to receive the declared dividend. On the day that a share starts trading ex-dividend, we can expect the share price to drop by the value of that dividend. In effect, on the last day that a share trades cum-dividend, anyone purchasing a share not only becomes a share holder, they also acquire the right to shortly receive a known cash flow, i.e., the dividend. On the following day, when the share enters its ex-dividend period, the share purchaser no longer receives the dividend receivable benefit, they only receive the share. At the time the "dividend receivable" benefit is lost from the share (i.e., the day that it starts trading ex-dividend), it is logical to expect that the cost of acquiring the share will drop by the value of the dividend.
4. Shareholders receive their dividend payments. At that time there is no longer a need to refer to the share as trading "ex-dividend", as the term is only used to help share traders determine whether acquisition of a share will carry the entitlement of receiving a forthcoming dividend payment that has been declared.

Box 15.6 provides a worked example of this dividend payment procedure and also the accounting implications arising.

Box 15.6

Dividend payment – accounting implications and timeline

The MagnificentHotel Company has 50,000 shares outstanding. Following a meeting on 15th July, its board of directors announced that the company would be paying a cash dividend of \$1.20 per share to investors recorded as owning MagnificentHotel Company shares on 8th August (date of record) and that the dividend would be paid on 7th September.

The company's relevant accounts prior to the dividend declaration were:

Cash	\$400,000	Dividends payable	\$0
		Retained earnings	\$800,000

On 15th July, following the declaration of the dividend, the company's commitment to pay the dividend was recorded in its accounts by taking \$60,000 out of "Retained earnings" (total dividend = 50,000 shares × \$1.20 dividend per share) and recognizing the amount as a liability by putting it in the "Dividends payable" account. This resulted in the following revised balances in the relevant accounts:

Cash	\$400,000	Dividends payable	\$60,000
		Retained earnings	\$740,000

The MagnificentHotel Company's shares will start trading ex-dividend four days before the 8th August date of record. This signifies that anyone buying a share in the company on 3rd August or before will be entitled to receive a dividend. All things being equal, we would therefore expect to see a \$1.20 drop in the price of the share when it starts trading on 4th August.

Payment of the \$1.20 per share dividend to shareholders on 7th September would signify a cash outflow of \$60,000 for the company. Accordingly, on that date \$60,000 would be deducted from the "Cash" account and removed from the "Dividends payable" account, resulting in the following revised account balances:

Cash	\$340,000	Dividends payable	\$0
		Retained earnings	\$740,000

Dividend declaration and payment timeline

Dividend declaration	Ex-dividend date	Date of record	Dividend payment
15th July	4th August	8th August	7th September

Dividend policy

Dividend payments represent a cash allocation of profits to a company's shareholders. Such payments can be seen as representing the delivery of a return on the investment in shares made by a shareholder. A second source of return for shareholders arises when a shareholder sells their shares at a price that is greater than the price that they paid to purchase the shares. Such a share price gain is widely referred to as a "capital gain". If shares are sold for a price that is below their purchase price, a "capital loss" arises.

An issue that finance theorists have debated over for many years concerns what policy a company's board of directors should pursue when determining the size of dividend payments. Some talk of an **information effect dividend theory**. According to this view, a decision to pay an increased dividend to shareholders carries a positive impact on share price. This is because the decision to pay a higher dividend can be seen as a signal that flags a company's intent to pay higher dividends in years to come. Conversely, a decrease in dividends is believed to provide a negative signal, as it suggests that dividends might decrease in years to come. This view results in many companies pursuing a policy of only raising dividend levels if they are confident that the increased dividend level can be maintained in years to come. In effect, companies seek to avoid the negative impact on share price that would result should they drop the amount of dividends paid in any given year.

A very different view is provided by the **residual dividend theory**. According to this theory, a company should use all its funds not needed for operations investing in positive net present value (NPV) projects, until no further positive NPV project opportunities remain. Following this line of thinking, once a company has invested in all available positive NPV projects, any remaining excess long-term capital (i.e., residual funds) should be distributed as a dividend to its shareholders. This theory is built on the view that a shareholder should be happy to forgo receiving dividends, so long as the company that they own shares in is investing in projects that, over the long term, will generate profits that will enable shareholders to be provided with returns that exceed their required rate of return (see the cost of capital calculation in [Box 14.5](#)). If a company can provide returns to shareholders that exceed their required rate of return, all things being equal, demand for the company's shares will rise, causing an increase in the share price.

Closely associated with the residual dividend theory is the idea that when financing investments in positive NPV projects, it is cheaper to use retained earnings rather than raising new equity finance. This is because a company has easy access to funds retained in the business, especially when compared to raising new equity capital. The raising of new equity will result in considerable expenditure associated with administering the new share issue process. Accordingly, using retained earnings to fund capital expenditures is preferable to using new equity funding, as retained earnings represent a cheaper source of equity capital.

Application of the residual dividend theory will result in volatile dividend payments. There will be low dividend payments in years when a company has many high NPV projects to invest in, and high dividend payments in years when a company has no, or only a few, positive NPV projects to invest in. As already noted in this chapter, investors do not like uncertainty and dividend volatility represents a source of uncertainty. Accordingly, some financial commentators argue that rather than pursuing the residual dividend theory, companies should seek to provide their shareholders with a steady stream of dividends. Some have gone so far as to argue that in low profit years, new equity capital should be raised in order to finance dividend payments at a rate that is consistent with dividend payments made in previous years.

The difference in the residual dividend theory and the "information effect" dividend theory is quite stark. If applying the residual dividend theory, a low payment of dividends would be

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consistent with the company investing in many positive NPV project opportunities. From a high number of positive NPV opportunities perspective, we should expect share prices to rise, due to the enhanced company value that should derive from making the positive NPV investments. However, from an “information effect” dividend theory perspective, we would expect share prices to decline due to the negative signal associated with a drop in dividends.

Research has found that in practice the behaviour of financial managers and shareholders suggest that the market does perceive an information effect. It has been found that many companies pursue a dividend policy that sees slow and consistent growth levels, or the payment of a consistent dividend that is only raised should the company have confidence it can maintain the higher dividend payment level.

There is also a **cliente effect** that argues that companies should not alter their established dividend policy. Imagine hotel company A has a tradition of paying out a high proportion of its profit as dividends and hotel company B has pursued a low dividend payout policy. Hotel company A will have attracted shareholders that like a high dividend payout. If they did not want high dividend payouts, they would not have bought hotel A’s shares. Hotel company B’s shareholders can be expected to be interested in getting their investment ROI in the form of share price capital gains rather than dividends, otherwise why would they have purchased hotel company B’s shares? If either company were to change its dividend payout policy, it might alienate its existing shareholders which would cause them to sell their shares, which in turn would result in a drop in share price.

7) Operating and financial leverage

Leverage arises when a company incurs fixed costs. Fixed costs can be divided into two main categories. The first category relates to a company’s operating activities (e.g., salaries, insurance, etc.). The second category concerns fixed costs arising from a company’s long-term capital financing (e.g., interest payable on long-term debt).

As will be seen below, fixed costs have the effect of magnifying returns (or losses) earned by a company’s shareholders. Fixed costs can therefore be seen to lever up, or down, shareholder returns, and it is this leveraging characteristic that has resulted in the term “leverage” being widely used to describe the extent to which a company’s cost structure contains fixed costs.

As leverage has the effect of magnifying shareholder returns, it triggers greater shareholder return volatility. This greater shareholder return volatility signifies that higher leverage signifies higher risk. Or, stated differently, higher fixed costs signify higher risk.

We will examine a company’s leverage according to the three leverage levels depicted in [Figure 15.1](#). The three leverage levels are:

- **Operating leverage** which concerns the relationship between movements in a company’s sales and the resulting movement in its earnings before interest and tax (EBIT).
- **Financial leverage** which concerns the relationship between movements in a company’s EBIT and the resulting movement in its earnings per share (EPS).
- **Total leverage** which spans operating and financial leverage. It concerns the relationship between movements in a company’s sales and the resulting movement in its earnings per share.

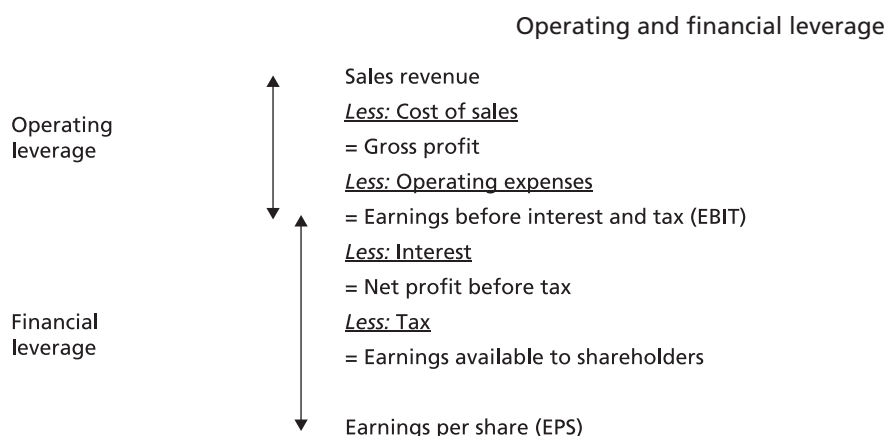


Figure 15.1 Different spans of leverage

Operating leverage

Operating leverage results when a company has some fixed operating costs (e.g., salaries, rent and insurance). The presence of fixed operating costs results in a percentage change in sales triggering a larger percentage change in EBIT. A worked example showing the effect of operating leverage in the WateryWillow Hotel is presented in [Table 15.1](#).

The WateryWillow Hotel case shows us that operating leverage is in evidence for a decrease as well as an increase in sales. From [Table 15.1](#), we can see that a 20 per cent increase in WateryWillow's sales from its current 10,000 room nights per annum sold level would result in a 52 per cent increase in the hotel's EBIT. We can also see that a 20 per cent decline in sales would result in EBIT decreasing by 52 per cent. The sole reason accounting for EBIT's percentage change being greater than the percentage change in sales is the presence of fixed costs. If the \$800,000 of operating fixed costs present in the WateryWillow Hotel's cost structure were to be removed and we were to recalculate the numbers in [Table 15.1](#), we would find that a given percentage change in sales would result in the same percentage change in EBIT. This highlights the way that fixed costs act as a lever causing a change in sales to trigger an amplified change in EBIT.

Table 15.1 Operating leverage – impact of sales increase on EBIT

	<i>WateryWillow Hotel</i>		
	<i>20% sales decrease</i>	<i>Current sales level</i>	<i>20% sales increase</i>
Annual room night sales	8,000	10,000	12,000
Sales revenue	\$1,200,000	\$1,500,000	\$1,800,000
<i>Less: Variable costs</i>	<u>160,000</u>	<u>200,000</u>	<u>240,000</u>
Contribution	1,040,000	1,300,000	1,560,000
<i>Less: Fixed costs</i>	<u>800,000</u>	<u>800,000</u>	<u>800,000</u>
EBIT	<u>\$240,000</u>	<u>\$500,000</u>	<u>\$760,000</u>
	52% EBIT decrease		52% EBIT increase

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We can calculate a numerical indicator of a company's degree of operating leverage (DOL). As operating leverage concerns the extent to which a changed level of sales becomes amplified in a resulting change in EBIT, it follows that the DOL can be measured by comparing a percentage change in sales to the resulting percentage change in EBIT. Accordingly, DOL can be measured by applying the following equation:

$$\text{Degree of operating leverage index} = \frac{\text{Percentage change in EBIT}}{\text{Percentage change in sales}}$$

Plugging the numbers from the WateryWillow example into this formula (regardless of whether we take the case of increased or decreased sales) we find WateryWillow's DOL to be 2.6 ($52 \div 20$).

If the WateryWillow Hotel were to take a step that increased its fixed costs relative to variable costs (e.g. replace a casual staff member who worked in a café with a coffee vending machine), then its fixed costs would rise, causing an increase in its DOL. As a high DOL index signifies high EBIT volatility relative to any changes in sales, we can view the DOL index as an indicator of risk. A high DOL index signifies high risk with respect to a company's operating cost structure.

If it is possible to obtain unit cost data for a company, an alternative approach to calculating the DOL index can be taken. Imagine that we have been able to determine that the WateryWillow Hotel sells its room nights for \$150, incurs \$20 in variable costs for each room night sold and has fixed operating costs of \$800,000 per annum. Using this data (derived from [Table 15.1](#)), we can apply the following formula as an alternative approach to determining the DOL index:

$$\text{DOL index at current level of sales} = \frac{Q(P-V)}{Q(P-V) - F}$$

Where: Q = quantity of sales; P = unit selling price; V = unit variable cost; and F = fixed costs. Substituting WateryWillow Hotel's data in this formula we get:

WateryWillow Hotel's DOL index =

$$\frac{10,000 (\$150 - \$20)}{10,000 (\$150 - \$20) - \$800,000} = \frac{\$1,300,000}{\$500,000} = 2.6$$

Note that this 2.6 DOL index is consistent with the index we computed earlier when we divided WateryWillow Hotel's percentage change in EBIT by its percentage change in sales.

Financial leverage

As already noted, financial leverage concerns the relationship between movements in a company's EBIT and the resulting movement in its earnings per share (EPS). Financial leverage results when a company has some fixed financing costs. The main example of a fixed financing cost is interest paid on debt. Similar to the approach we took to examine operating leverage, we will explore the nature of financial leverage by considering the WateryWillow Hotel. The relationship between changes in EBIT and the resulting changes in EPS for

Table 15.2 Financial leverage – impact of EBIT increase on EPS

	<i>WateryWillow Hotel</i>		
	<i>20% EBIT decrease</i>	<i>Current EBIT level</i>	<i>20% EBIT increase</i>
EBIT	\$400,000	\$500,000	\$600,000
Less: Interest	<u>100,000</u>	<u>100,000</u>	<u>100,000</u>
Net profit before tax	300,000	400,000	500,000
Less: Tax (40%)	<u>120,000</u>	<u>160,000</u>	<u>200,000</u>
Earnings available to shareholders	<u>\$180,000</u>	<u>\$240,000</u>	<u>\$300,000</u>
	÷ 20,000	÷ 20,000	÷ 20,000
Earnings per share (EPS)	\$9	\$12	\$15
	25% EPS decrease		25% EPS increase

the WateryWillow Hotel is provided in Table 15.2. It is assumed that the WateryWillow Hotel has 20,000 shares, pays \$100,000 per annum in interest and is subject to 40% tax.

Consistent with the workings of operating leverage, Table 15.2 shows us that financial leverage is in evidence for a decrease as well as an increase in EBIT. We can see that a 20 per cent increase in WateryWillow's current EBIT of \$500,000 would result in a 25 per cent increase in its EPS. We can also see that a 20 per cent decline in EBIT triggers a 25 per cent EPS decrease. The factor causing EPS to change by a greater percentage than the percentage change in EBIT is the presence of fixed costs, which in the case of financial leverage is interest on debt capital.

Similar to the case of operating leverage, we can calculate a degree of operating leverage index by comparing the percentage change in EPS with the percentage change in EBIT that has caused the altered level of EPS. The degree of financial leverage (DFL) can be measured by applying the following equation:

$$\text{Degree of financial leverage index} = \frac{\text{Percentage change in EPS}}{\text{Percentage change in EBIT}}$$

Plugging the numbers from Table 15.2 into this formula (regardless of whether we take the case of an increased or decreased level of EBIT) we find WateryWillow's DFL index to be 1.25 ($25 \div 20$). As the index is greater than 1, we know that financial leverage must be present.

Again we can use an alternate formula that is not reliant on having data relating to differing levels of performance. The alternate formula for computing the DFL index is:

$$\text{DFL index at current EBIT level} = \frac{\text{EBIT}}{\text{EBIT} - I}$$

Where: EBIT = earnings before interest and tax; and I = interest

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Substituting WateryWillow Hotel's data in this formula we get:

$$\begin{aligned} \text{WateryWillow Hotel's DFL index} &= \\ \frac{\$500,000}{\$500,000 - \$100,000} &= \frac{\$500,000}{\$400,000} = 1.25 \end{aligned}$$

Total leverage

Total leverage simply represents the combination of operating and financial leverage. It captures the effect that fixed operating and financial costs have on the relationship between changes in sales and EPS. A high total leverage stems from a high degree of fixed operating and financial costs and will result in changes in sales levels triggering relatively high EPS changes.

In a manner consistent with the approaches taken for DOL and DFL, a company's degree of total leverage (DTL) index could be computed by applying the following formula:

$$\text{DTL index} = \frac{\text{Percentage change in EPS}}{\text{Percentage change in sales}}$$

Alternatively, consistent with the alternate formulae provided above for calculating an index for DOL and DFL, we can compute a DTL index as follows:

$$\text{DTL index at current level of sales} = \frac{Q(P - V)}{Q(P - V) - F - I}$$

Where: Q = quantity of sales; P = unit selling price; V = unit variable cost; F = fixed costs; and I = Interest.

Finally, the DTL index can also be determined by multiplying the DOL index by the DFL index. This signifies that WateryWillow Hotel's DTL index =

$$\text{DOL} \times \text{DFL} = 2.6 \times 1.25 = 3.35.$$

This 3.35 DTL index signifies that if WateryWillow Hotel's current level of room nights sold were to increase by 10 per cent from 10,000 to 11,000, then its EPS would increase by 33.5 per cent (i.e. a percentage increase that is 3.35 times more than the percentage increase in sales).

Leverage implications for management decision making

Imagine the WildHotel company has a relatively high total leverage compared to its competitors. This would result in it having greater EPS volatility, signifying a relatively high uncertainty held by shareholders with respect to their likely investment returns. This high EPS volatility may be sufficient to negatively impact on the WildHotel's share price. As a result of this, the company's management may well be wanting to reduce the company's DTL. This strategy can be pursued by seeking to:

- a. reduce operating leverage,
- b. reduce financial leverage, or
- c. reduce both operating and financial leverage.

Options to reduce operating leverage can be limited by the nature of technology required to undertake operational activities. For instance, in a hotel context it is not likely to be feasible to stop using a lift (which may have high maintenance and running costs) and require hotel guests to use the stairs. Nevertheless, in many hotels there are likely to be some options for reducing operating fixed costs, especially over the longer term. Imagine that laundry equipment in the WildHotel is approaching the end of its life and management is considering when to replace the equipment. This would be an opportunity to reduce operating leverage by deciding not to purchase new laundry equipment, but to outsource laundry cleaning to a laundry specialist provider that is willing to charge on the basis of the volume of laundry cleaned. If the WildHotel decided to take this laundry outsourcing option, it would be replacing some significant fixed costs with variable costs. The fixed costs that it would be losing would include any salary paid to the head of laundry, laundry equipment maintenance costs, cleaning of the laundry area, etc. The new outsourcing laundry costs would be all variable if WildHotel entered into an outsourcing arrangement with fees paid based on the volume of laundry cleaned.

While many businesses experience technologically based constraints on the degree to which they can replace operating fixed costs with operating variable costs, such a constraint does not apply to modifying financial leverage levels. If the WildHotel company has a high degree of financial leverage, it can either raise new equity capital or retain a greater proportion of its profit and use retained earnings to fund the retirement of debt capital. In effect, the company would be replacing debt funding with equity funding.

Alternative financing options and impact on shareholder returns

From the above discussion concerning the way that debt financing will cause greater EPS volatility, it will be evident that a decision to raise debt or equity capital should be taken by considering the impact the debt capital will have on shareholder earnings levels. Financial decision making in [action case 15.1](#) provides an example of a company considering the likely impact on shareholder earnings resulting from a decision to raise equity or debt capital.

FINANCIAL DECISION MAKING IN ACTION CASE 15.1

The Financial Controller and financial leverage

Imagine Nottingham's RobinHood hotel chain has £2 million of assets and a debt to assets ratio of 40 per cent (£800,000 in debt and £1,200,000 of equity). It pays 10 per cent annual interest on its debt, currently achieves an EBIT of 15 per cent on assets employed, and pays company tax at the rate of 40 per cent. The management of RobinHood is considering a £1 million expansion in capital, which, consistent with existing assets, is projected to earn a 15 per cent return. The management is deliberating whether to fund the £1 million expansion through arranging a further

loan at 10 per cent annual interest or to finance the expansion through raising more equity capital. Management believes that issuance of debt will not result in insolvency problems and is primarily focusing on its desire to maximise the hotel owners' return. The impact on the owners' return resulting from the issuance of debt (financing option 1) versus the issuance of further equity capital (financing option 2) are detailed in the schedule presented below.

	Financing option 1 (debt)	Financing option 2 (equity)
	£	£
Projected return on assets: 15% of £3 m.	450,000	450,000
Less interest on debt ^a	<u>180,000</u>	<u>80,000</u>
Profit before Tax	270,000	370,000
Less 40% Tax	<u>108,000</u>	<u>148,000</u>
Profit after Tax	<u>162,000</u>	<u>222,000</u>
% Return on owners investment ^b	13.5%	10.1%

a For financing option 1: 10 per cent of £1,800,000; for financing option 2: 10 per cent of £800,000.

b For financing option 1: $£162,000 \div £1,200,000 \times 100$; for financing option 2: $£222,000 \div £2,200,000 \times 100$.

From this example, it is apparent that a greater return on owners' investment results from taking the debt financing option. This highlights how the hotel finance function can use debt financing to "lever" or "gear" up returns to equity holders.

The Financial Controller must be careful not to raise too much debt, however, due to risk implications. High perceived risk will reduce the value of the hotel's equity. Relative to many other industries, the hotel sector has fairly high business risk due to relatively volatile sales and a relatively high proportion of fixed operating costs. As a result, hotel financial controllers tend to be averse to taking on high levels of financial leverage.

8) Summary

In this chapter we have looked at several different financial management topics. The chapter commenced with a consideration of what represents an appropriate financial objective for companies. We reviewed agency theory and goal congruency problems that can arise when hotel owners engage hotel operators.

We explored the nature of share trading, stock market indices and how shares can be valued. We reviewed what steps have to be taken by companies when paying dividends and also issues surrounding a company selecting its dividend payment policy.

Finally, we examined the nature of leverage. We noted that leverage can be examined at the level of operating fixed costs or financing fixed costs. Greater levels of leverage result in greater EPS variability, and therefore greater perceived company risk.

Having read this chapter you should now know:

- managers should pursue the financial objective of maximizing shareholder wealth, not EPS
- that agency theory concerns the relationship between one party that wants to have a job done (the principal) and a second party (the agent) that is engaged by the first party to perform the job
- that the way fees for hotel operators are widely calculated can create goal congruency problems between hotel owners and operators
- that a share can be valued by calculating the present value of its expected dividends
- that there are conflicting theories with respect to what approach should be taken when setting a company's dividend policy
- that more operating leverage signifies greater EBIT variability
- that more financing leverage signifies greater EPS variability.

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Problems

Problem 15.1

Provide three reasons why pursuit of shareholder wealth maximization is preferable to pursuing EPS maximization.

Problem 15.2

- a. With respect to setting dividend payment policy, explain the difference between the residual dividend and information effect theories.
- b. In practice, do companies tend to adhere to the residual dividend theory or the information effect theory when setting dividend policy?
- c. What does the clientele effect tell us with respect to dividend payment policy making?

Problem 15.3

What three dimensions of reporting are captured in triple bottom line reporting?

Problem 15.4

For each of the following agency relationships, identify which party is the principal and which party is the agent.

1. Board of directors' relationship with a company's shareholders.
2. Food & Beverage Manager's relationship with a Restaurant Manager.
3. Doctor's relationship with a patient.
4. Stockbroker's relationship with a share investor.
5. Member of Parliament's relationship with voters in his electorate.

Problem 15.5

You have predicted that you will be able to sell your 100 shares in the Sydney-based BlissfulEscape hotel company in three years' time for \$25 each. Prior to selling the shares, you believe the company will pay you a \$2 per share dividend at the end of each of the next two years. Shareholders in the BlissfulEscape hotel company have a 10 per cent required rate of return. Based on this information, provide an estimate of the current value of your total share investment in the BlissfulEscape company (present value factors are presented in [Table 14.1](#) and [14.2](#)).

Problem 15.6

New York's Reliable Hotel Management Company has been consistently paying an annual dividend of \$6.00 for many years and all indications suggest that this behaviour will continue for many years to come. Analysts attribute a required rate of return of 12 per cent for shareholders in the company. Use the perpetuity formula to develop a valuation of the Reliable Hotel Management company's share.

Problem 15.7

Imagine a hotel operator is considering which out of two potential investment opportunities, Project A or Project B, it will promote to the owner of a hotel it manages. Project A will require an initial investment of \$500,000 and Project B will require an initial investment of \$2,000,000. The projected revenue and profit projections associated with the two investment alternatives are outlined below.

	Project A		Project B	
	Revenue	Gross operating profit	Revenue	Gross operating profit
Year 1	\$250,000	\$100,000	\$400,000	\$160,000
Year 2	\$250,000	\$100,000	\$400,000	\$160,000
Year 3	\$250,000	\$100,000	\$400,000	\$160,000
Year 4	\$250,000	\$100,000	\$400,000	\$160,000
Year 5	\$250,000	\$100,000	\$400,000	\$160,000

The operator's fee is determined as 3 per cent of gross revenue (base fee) and 10 per cent of gross operating profit (incentive fee).

Required:

- a) Calculate the impact on the annual operator's fee that would result from investing in Project A vs Project B. Based on this calculation, indicate which of the two projects the hotel operator would likely prefer.
- b) Calculate the annual ROI of the two projects. Based on this calculation, which project would you expect the hotel owner to prefer?

Problem 15.8

Your cousin purchased shares in the French Utopia hotel group two years ago. He tells you that the earnings per share are currently €2 and that the share price has performed strongly over the last two years, rising by 25 per cent to €40. Hotel groups with an international profile similar to Utopia currently have price earnings ratios averaging around 16. Your cousin is questioning how well Utopia is performing relative to its competitors and asks if the EPS and share price can provide any insights into Utopia's performance.

Required:

Use the information provided to comment on Utopia's relative financial standing and performance.

Problem 15.9

Hotel A's degree of operating leverage index is 2 and Hotel B's degree of operating leverage is 4.

Required:

- a. If Hotel A's room nights sold were to double, by what percentage would you expect its EBIT to increase?
- b. Which of the two hotels is more risky with respect to its operating cost structure?
- c. If management in the hotel with the more risky operating cost structure would like to reduce this risk, what steps could it take?

Problem 15.10

Two hotel chain companies that provide only room accommodation services are competing in the same market. Historically they have provided similar rates of return to their shareholders. Information on the two hotel companies follows:

- Swanky Hotel sells 45,000 room nights per annum, has a \$160 average room rate, its variable costs are \$15 per room night sold and it has operating fixed costs of \$540,000 per annum. The Swanky hotel's long-term capital comprises 10,000 shares and debt capital of \$4,000,000 that carries a 7 per cent interest rate.
- Swish Hotel sells 40,000 room nights per annum, has a \$155 average room rate, its variable costs are \$10 per room night sold and it has operating fixed costs of \$1,040,000

Other managerial finance issues

per annum. The Swish hotel's long-term capital comprises 5,000 shares and debt capital of \$5,000,000 that carries an 8 per cent interest rate.

Required:

- a. A friend who is considering buying shares in one of the two companies has approached you and asked you to provide a degree of operating leverage, degree of financial leverage, and degree of total leverage analyses for the two companies.
- b. Based on your leverage analyses, comment on which of the two companies appears to be the more risky investment.

Problem 15.11

The Singapore Tiger hotel's degree of operating leverage index is 8 and its degree of financial leverage is 1.25. The Singapore's Lion hotel's degree of operating leverage index is 2.5 and its degree of financial leverage is 4.

Required:

- a. Which of the two hotels has the higher degree of total leverage?
- b. If both of the hotels have an objective of halving their degree of total leverage, which of the hotels do you believe is better placed to achieve this objective?

Problem 15.12

Canada's FrozenIce hotel chain has \$3 million of assets and a debt to assets ratio of 30 per cent (\$900,000 in debt and \$2,100,000 of equity). It pays 7 per cent annual interest on its debt, currently achieves an EBIT of 20 per cent on assets employed, and pays company tax at the rate of 40 per cent. The management of FrozenIce is considering a \$500,000 expansion in capital which, consistent with existing assets, is projected to earn a 20 per cent EBIT return. FrozenIce's management is trying to decide whether to fund the \$500,000 expansion through arranging a new loan at 7 per cent annual interest or to finance the expansion through raising more equity capital. Management believes that issuance of debt will not result in insolvency problems and is primarily focusing on its desire to maximise the hotel owners' return.

Required:

- a. Compare what the FrozenIce's owners' return on investment is if they raise the new finance through debt funding as opposed to equity funding.
- b. Based on your answer to a), provide a recommendation to the company's management with respect to which financing approach they should use.

Revenue management

Learning objectives

After studying this chapter, you should have developed an appreciation of:

1. what business characteristics are conducive to revenue management's application,
2. how revenue management is focused on striking an appropriate balance between minimising lost revenue resulting from rooms not sold and lost revenue resulting from selling rooms at prices below what that they could have been sold for,
3. how to appraise a hotel's need for improved revenue management decision making,
4. how rate categories can be used in combination with demand forecasts to increase total revenue,
5. how length of stay controls can be implemented to increase total revenue,
6. how changing the timing and size of group bookings can increase a hotel's revenue.

1) Introduction

Revenue management is a facet of hotel management that has become much more prominent in recent years. In large hotels it is now common for a senior manager to have the functional title "Revenue Manager".

Put simply, "Revenue Management" is concerned with maximising total revenue by using **demand forecast** information to determine what **price** to charge and **length of stay** to grant for a class of rooms at a particular time. When demand forecasts indicate that room night demand for a particular day is strong, we should hold out for a high price. When forecasts indicate that demand for room nights on a particular day is weak, we should consider discounting room prices in an effort to increase occupancy levels. The potential for a well-run revenue management system to affect profit is considerable. Cross (1997) suggests that a sales expense decrease of 5 per cent can raise profit by 3 per cent, a sales volume increase of 5 per cent can raise profit by 20 per cent, and a sale price increase of 5 per cent has the potential to increase profit by 50 per cent.

This philosophy of adjusting prices in accordance with demand is apparent in a range of business settings. For instance, theatre tickets are frequently discounted for matinee performances. Tickets to soccer matches are discounted when a fixture involves a team that has a

Revenue management

small following, but marketed at a premium rate when the likes of Manchester United are coming to town. Airline ticket prices are much higher during school holiday periods than they are outside school holidays.

Following deregulation of the US airline industry, the 1980s saw a rapid growth of several “budget airlines” and their extensive application of revenue management techniques. These budget airlines employed rapidly evolving computing technology to inform seat price setting across a growing number of flight fare categories. Factors affecting quoted prices included: how far in advance a flight reservation was booked, whether the booking coincided with a peak demand period, and prices offered by competing airlines. Computing capacity is significant in this exercise, as the airline seat price setting decision is highly fluid. As there are many evolving factors such as a competitive airline announcing a new discounted price for an equivalent flight journey, seat price setting should not be viewed as a static “one-off” exercise, but rather as an on-going exercise that constantly reacts to unfolding market demand information.

During these early years, “yield management” was the term generally used to describe this demand-based flexible approach to pricing. Today, however, the term “revenue management” is more common, especially in hotels.

Hotel revenue management can be applied to the broad range of services sold by a hotel e.g., room accommodation, restaurant, bar and conferencing. The discounting of restaurant prices during lunchtime sittings, the provision of happy hour prices in a bar and the discounting of convention facility prices during quiet times can all be viewed as manifestations of revenue management decision making. To assist the development of your understanding of the nature and workings of revenue management, we will simplify matters by only considering revenue management in the context of decisions concerning the sale of room nights. This focus is particularly appropriate as, in reality, in most hotels it is room sales that receive the greatest amount of revenue management attention.

Revenue management is a highly inter-disciplinary activity, as marketing, accounting and operations management are all involved in its application. Due to this book’s focus, we will be taking a financial perspective on revenue management decision making. In this chapter we will examine what types of business stand to benefit most from applying a well-designed revenue management system and how demand forecasting is fundamental to the workings of a revenue management system. Following a review of techniques that can be applied to appraise an organisation’s need for revenue management, we will explore a range of specific revenue management applications that include the establishment of room rate categories and length of stay controls as well as group booking management approaches.

2) Business characteristics conducive to revenue management application

Revenue management is not equally applicable to all business settings. In this section we review the range of factors that make some business settings more conducive to revenue management application than others.

Fixed capacity

In many business situations, companies can relatively easily adjust their output in line with fluctuating levels of demand. For instance, a ski manufacturer will increase its level of production as the busy winter sales period approaches, maybe by working more shifts, and then decrease production as the summer season approaches. In this situation, it is evident that the

manufacturer is clearly changing the volume of skis it is supplying to shops in line with changing levels of demand over the course of a year.

Now consider the case of a 200-room ski resort hotel that experiences a high demand for room nights during the winter months, but relatively low demand during the summer months. The hotel cannot vary the supply of room nights from one season to another. The hotel was built several years ago, signifying that its number of rooms available for sale are fixed. During the peak winter period, each day the hotel can sell 200 room nights, just as it can sell 200 room nights on any day in the summer. Its capacity is fixed. Because its capacity is fixed, there is an obvious incentive for the hotel to seek to charge higher room rates during its busy season, but then drop its room rates during its quiet season in an effort to sell off its excess capacity of rooms.

Ability to segment markets

The capacity to segment customers into distinct categories that are based on buying behaviour is a key feature of revenue management. For instance, we might be able to identify key buying behaviour differences between a hotel's guests who travel on business relative to vacationing family guests. Due to families needing to plan and coordinate their vacation ahead of time, it is customary for this market segment to book their accommodation well in advance. Business travel tends to be arranged more spontaneously with much shorter booking lead-times. Other typical buying behaviour differences between these two market segments include the fact that business guests have a greater propensity to dine in at a hotel's restaurant and also purchase drinks from in-room mini bars. Guilding et al. (2001) demonstrate how knowledge of such buyer behaviour differences can inform a decision to set different room rates for different market segments.

If a hotel is projecting low room night demand in six months' time, it could develop a room discounting strategy targeted to its family guest vacation market segment. To access this market segment, it could inform vacation booking agents that a temporary special discount is being offered for room nights booked in six months' time. This revenue management strategy would carry minimal negative implications for the room rates paid by business guests booking last minute accommodation, as these guests would not be making room bookings six months in advance through a vacation agent. This is a small example designed to demonstrate how different pricing structures can be offered simultaneously to distinct market segments.

Perishable inventory

If a car manufacturer's sales are slow on a particular day, there is no particular need for the manufacturer to drop the prices of its cars in an effort to sell more on that day. Cars not sold today can simply remain in the car manufacturer's finished goods inventory in readiness to be sold tomorrow or at some other time in the future. This is because cars represent a non-perishable inventory item.

This is not the situation for a hotel's room inventory, however. If tonight's right of occupancy in a particular hotel room is not sold today, the opportunity to sell that occupancy right will be lost forever, as an unsold room night today cannot be placed into inventory for sale at a later date. This heightens the incentive for hotels to consider a strategy of discounting room rates as the time of an unsold block of room nights approaches. As an unsold room night cannot be sold at a future date, it is described as being highly "perishable".

Product sold in advance

Some transient hotels (such as a roadside motel) sell the majority of their room inventory no more than a week in advance and have a substantial number of “same day” room bookings. For hotels that have a large volume of group sales, however, room reservations tend to be made several months in advance.

Revenue management is more relevant to hotels that have a high proportion of long lead-time bookings (i.e. bookings made well in advance of room night occupancy). In hotels that have a high proportion of long lead-time bookings, hotel managers are often having to decide whether to accept a reservation from a group booking agent who is seeking a block of rooms in several months time at a heavily discounted price. The manager has to decide whether to: 1) take the booking and face the possibility of having to turn away guests who would have booked late and paid a higher room rate, or 2) turn away the booking and face the possibility of the hotel achieving low occupancy for the nights in question and therefore lose the revenue that had been on offer from the group booking agent. A good revenue management system can help inform a manager confronted by this type of decision-making situation.

Fluctuating demand

If demand for whatever product or service a business is selling is constant, there is little need for a revenue management system, as there is little reason to change prices over the course of a year. Many hotels, however, confront highly fluctuating demand over the course of a week, month and year.

Revenue management is all about adjusting prices in line with fluctuating demand levels. When demand for rooms is low, an attempt can be made to increase total revenue by discounting room rates in an effort to increase occupancy levels. When demand for rooms is high, total revenue can be increased by setting higher room rate levels. A revenue management system can help inform a manager who is seeking to determine when, and by how much, room rates should be lowered or raised.

Low variable costs

The primary variable cost arising when a hotel sells an additional room night is the cost of cleaning and preparing the room for a new occupancy. In most hotels, this cost is small relative to the room rate paid by a hotel guest. As a contribution to profit results so long as the room rate charged is greater than the variable cost of cleaning the room, from a “covering cost” standpoint, a hotel manager has considerable discretionary scope to discount room rates.

In [Chapter 12](#)’s Figure 12.1, it was noted that the percentage price discretion range applying to the sale of a bottle of wine is much smaller than the percentage price discretion range price for a room night sale. This is because, compared to a room night sale, the bottle of wine’s variable cost represents a much larger proportion of its selling price. The high price discretion range associated with setting room rates signifies there is considerable scope for a hotel manager to modify room rates in light of information provided by a revenue management system.

3) Demand forecasting

It is helpful to think of a hotel revenue management system as focused on two goals:

- Goal 1: Minimising lost revenue resulting from rooms not sold.
- Goal 2: Minimising lost revenue resulting from rooms sold at prices below what they could have been sold for.

If a hotel is able to simultaneously minimise these two sources of lost revenue, it will be maximising its room sales revenue and, by implication, maximising its Revpar (revenue per available room).

An obvious tension arises, however, between these two goals. Pursuit of “Goal 1” causes us to focus on room rate discounting in an effort to sell more of our room inventory. This focus raises the prospect of damaging our pursuit of “Goal 2”, however, as the dropping of room rates increases the likelihood of losing revenue as a result of selling some room nights at rates that are below what the rooms could have been sold for. Similarly, a hotel focusing on “Goal 2” will be trying to keep room rates high. Keeping room rates high will increase the likelihood of not achieving “Goal 1”, as higher room rates will cause some potential guests to seek out alternative accommodation at a competing hotel. This signifies that the best Revenue Managers and the best revenue management systems will have a strong track record in striking an appropriate balance between the pursuit of Goals 1 and 2. They will ensure that too much emphasis on pursuing Goal 1 does not damage the pursuit of Goal 2, and vice versa.

Fairly obviously, a key factor in striking an appropriate balance between the pursuit of Goals 1 and 2 is knowing the nature of the demand for rooms on a particular night. Demand forecasting is fundamental to revenue management. Decisions on what rate to set for a room night can only be made if we have an understanding of the nature of demand for that room night. This underscores the fact that the quality of revenue management decision making can only be as good as the quality of the forecasting system on which it is based.

It is important to appreciate the distinction between forecasts and budgets. Budgeting was examined in [Chapter 9](#). Once a budget is developed, based on forecast information available at the time of budget-setting, it does not tend to be altered. It is then used as a basis for gauging performance, through the comparison of actual financial results to budgeted financial performance. Forecasts, however, are not so static, as they are constantly evolving and being updated. It is on the basis of updated demand forecast information that room rates to be charged several months in the future can be changed on a daily, or even hourly, basis.

A forecast of room sales in a year's time cannot be expected to have the same accuracy as a forecast of sales in a week's time. This is simply because there is much greater scope for unanticipated events and developments to occur over the course of the forthcoming year than over the forthcoming week. As a result, longer-term forecasts are typically less detailed. They are intended to provide broad indications of likely demand and will be based on relatively generalised information such as projected tourism demand and the projected disposable income of people in a hotel's key markets. If one market's segment demand is expected to decline relative to another market segment, this needs to be considered by a revenue manager and room rate adjustments made accordingly.

4) Gauging a hotel's need for revenue management

There are three approaches that can be taken to gauge a hotel's need to employ revenue management, or stated differently, to gauge its revenue management performance. The three approaches are:

Revenue management

- a) Internal analysis of lost revenue;
- b) Conducting a “competitive set” Revpar comparative performance analysis;
- c) Conducting a comparative Revpar analysis based on purchased competitor data.

Each of these three approaches to gauging a hotel’s revenue management performance will now be considered in turn.

Internal analysis of lost revenue

An internal analysis of lost revenue can be made by focusing on the two goals that were stated above, i.e.:

- Goal 1: minimising lost revenue resulting from rooms not being sold.
- Goal 2: minimising lost revenue resulting from selling room nights at prices below what they could have been sold for.

With respect to “Goal 1”, for the previous year, we could develop an estimate of how much low rate category business our hotel turned away for dates when the property did not sell out. With respect to “Goal 2”, we could develop an estimate of the number of potential rack rate (full price) sales that were lost due to rooms sold at a discount, on nights when our property achieved 100 per cent occupancy. These two estimates could then be added together to provide an estimate of lost revenue due to sub-optimal revenue management. The relationship between these Goals 1 and 2 and the measures required to gauge their achievement are depicted in Figure 16.1.

Gauging the dollar value of these two lost sources of revenue is bound to involve a degree of estimation. The relative accuracy of the estimate will likely depend on the quality of pertinent record keeping and also the knowledge of key managerial staff such as the room sales manager.

Despite the fact that this exercise will never rise above being an estimate, the insights deriving from conducting the estimation exercise and the impact it can have on raising staff appreciation of revenue management’s importance should not be underestimated. “What gets measured is what gets managed” is a widely cited adage in management. In order for staff to attach a high priority to revenue management, they need to be alerted to the \$ value of lost revenues associated with not achieving Goals 1 and 2.

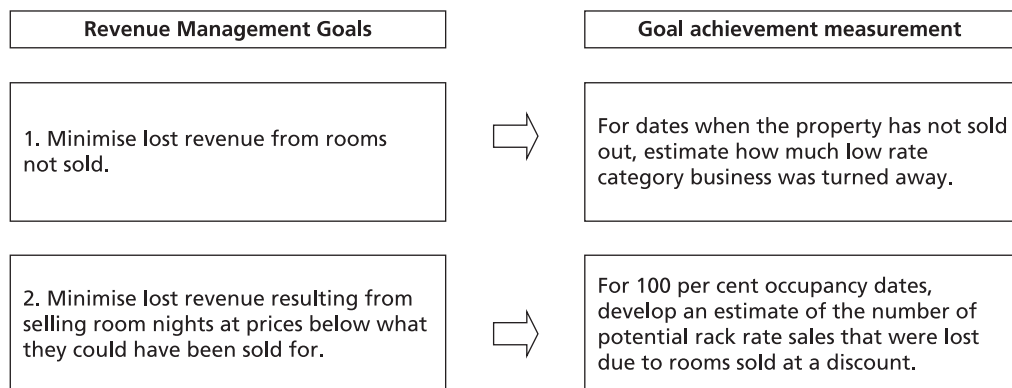


Figure 16.1 Internal analysis of lost revenue

Conducting a “competitive set” Revpar comparative performance analysis

Another approach to gauging whether a hotel needs to improve its revenue management performance can be taken by examining how its Revpar compares to the Revpar achieved by its closest competitors. To do this, a hotel will first need to identify the set of hotels operating within its close proximity, and then determine which of these hotels provide comparable levels of service. A group of hotels that are in close proximity and provide similar standards of service is referred to as a “**competitive set**”. Imagine that we are involved in the management of the Imperial Hotel and that we have determined that we have three other hotels in our competitive set (Hotels A, B and C). Revenue performance for this competitive set of hotels for the last 30 days is provided in Table 16.1. If a hotel seeks to develop the type of data reported in Table 16.1 it is bound to undertake some estimating. It is notable, however, that a distinguishing feature of the hotel sector concerns the extent to which it has a strong information sharing culture. Information sharing on factors such as occupancy levels is widespread between competing properties (Anderson and Guilding 2006).

In Table 16.1, the “market share capacity” column reflects the percentage of the competitive set’s total number of rooms provided by each of the hotels. “Room nights sold” reflects the total room nights sold by each of the hotels during the 30-day period. The “room nights share” column reflects the proportion of the competitive set’s total number of room sales accounted for by each individual hotel. “Room revenue” simply records the total room revenue generated by each hotel. In the final column, the “room revenue share” reflects the proportion of the competitive set’s total revenue generated by each of the hotels.

From Table 16.1 we can see that the Imperial Hotel is underperforming with respect to its share of room nights sold (23.58 per cent) as this falls below its share of the competitive set’s number of rooms (25.7 per cent). With respect to revenue, however, the Imperial is punching above its weight, as it is earning 27.05 per cent of the competitive set’s revenue, which is above its proportion of the competitive set’s number of rooms (25.7 per cent).

We can take this analysis further by calculating a set of penetration indices that capture each hotel’s relative performance with respect to occupancy, average daily rate (ADR) and Revpar. To do this we first need to compute the average occupancy for the whole market (first formula below), the ADR achieved by the whole market (second formula below) and the Revpar achieved by the whole market (third formula below).

Table 16.1 Competing hotels revenue comparison

<i>Hotel</i>	<i>Number of rooms</i>	<i>Market share capacity</i>	<i>Room nights sold</i>	<i>Room nights share</i>	<i>Room revenue</i>	<i>Room revenue share</i>
Imperial	180	25.7%	3,240	23.58%	\$609,120	27.05%
A	150	21.4%	2,835	20.63%	\$493,290	21.90%
B	170	24.3%	3,468	25.23%	\$561,816	24.94%
C	200	28.6%	4,200	30.56%	\$588,000	26.11%
Total	700	100%	13,743	100%	\$2,252,226	100%

Revenue management

$$\begin{aligned}\text{Market occupancy \%} &= \text{Market room nights sold} \div \text{Room nights available} \times 100 \\ &= 13,743 \div (700 \times 30) \times 100 \\ &= 65.44\%\end{aligned}$$

$$\begin{aligned}\text{Market ADR} &= \text{Market room nights sold revenue} \div \text{Room nights sold} \\ &= \$2,252,226 \div 13,743 \\ &= \$163.88\end{aligned}$$

$$\begin{aligned}\text{Market Revpar} &= \text{Market room nights sold revenue} \div \text{Room nights available} \\ &= \$2,252,226 \div (700 \times 30) \\ &= \$107.25\end{aligned}$$

$$\text{OR: Occupancy (as a decimal)} \times \text{ADR:}$$

$$0.6544 \times \$163.88 = \$107.24 \text{ (difference due to rounding error)}$$

The occupancy penetration index is calculated by dividing each hotel's occupancy percentage by the market occupancy percentage. If this index is greater than 1, it signifies that a hotel has outperformed its competitive set with respect to the occupancy levels it has achieved. Occupancy penetration indices are provided in the third column of [Table 16.2](#). The fact that the occupancy penetration index for the Imperial hotel is less than 1 signifies that it has underperformed compared to its competitive set of hotels with respect to occupancy levels it has achieved.

The ADR penetration index is calculated by dividing each hotel's ADR by the market ADR. ADR penetration indices are provided in the fifth column of [Table 16.2](#). The ADR penetration index for the Imperial Hotel is greater than 1. This signifies that it has outperformed its competitive set with respect to room rates charged.

Finally, the Revpar penetration index is calculated by dividing each hotel's Revpar by the market Revpar. Revpar penetration indices are provided in the final column of [Table 16.2](#). The Revpar penetration index for the Imperial Hotel is greater than 1. This signifies that it has outperformed its competitive set with respect to Revpar. From a revenue management perspective, Revpar represents the most complete indicator of a hotel's revenue management performance. This is because, as was noted in [Box 5.1](#) in [Chapter 5](#), Revpar represents the combination of a hotel's occupancy performance and its ADR achievement. As the Imperial Hotel's Revpar penetration index is the highest of its competitive set, this analysis suggests that overall the Imperial Hotel is outperforming all of its most immediate competitors with respect to revenue management.

Table 16.2 Competing hotels occupancy, ADR and Revpar penetration

<i>Hotel</i>	<i>Occupancy %</i>	<i>Occupancy penetration</i>	<i>ADR</i>	<i>ADR penetration</i>	<i>Revpar</i>	<i>Revpar penetration</i>
Imperial	60	0.92	\$188	1.15	\$112.80	1.05
A	63	0.96	\$174	1.06	\$109.62	1.02
B	68	1.04	\$162	0.99	\$110.16	1.03
C	70	1.07	\$140	0.85	\$98.00	0.91

The analysis provided in [Table 16.2](#) suggests that Hotel C is the poorest performing hotel as it has the lowest Revpar penetration index. The analysis provided in this table also provides us with a clue with respect to which aspect of its revenue management it should address. Hotel C performs strongly on the occupancy penetration index. This suggests that its main immediate focus should not be Goal 1 of revenue management, i.e. minimising the loss of revenue resulting from rooms not being sold, as compared to its competitors it is achieving a high proportion of rooms sold. Hotel C is performing very weakly, however, on the ADR penetration index. This suggests its main immediate focus should be on Goal 2 of revenue management, i.e., minimising the loss of revenue resulting from selling rooms at prices that are below the price that they could have been sold for. It appears Hotel C may have got the balance in simultaneously pursuing Goals 1 and 2 too slanted towards seeking low room vacancies, and as a result, it has dropped its room rates too low.

Conducting a comparative Revpar analysis based on purchased competitor data

There are several companies that collect and distribute performance data for hotels and hotel companies on a commercial basis. Companies that provide such a service include Horwath Consulting, PricewaterhouseCoopers and Smith Travel Research (in the USA). Such performance data can be categorised according to hotel characteristics such as size and star rating. Equipped with such information, a revenue manager can quickly determine her hotel's occupancy, ADR and Revpar performance relative to comparable hotels and use this information as an indicator of her hotel's revenue management performance.

5) Revenue management system requirements

It has already been noted that having a well-developed demand forecasting system is fundamental to revenue management. More specifically, an effective revenue management system requires historical data concerning booking patterns, the price elasticity of demand and the nature of demand across different market segments in order to develop room sale forecasts. In addition, a hotel's overbooking policy has to be fed into a revenue management system.

Reservation booking pattern information

The nature of a hotel's market can have a major impact on its average booking lead-time (i.e., the time between date of room occupancy and the date the occupancy was reserved). It is important that a hotel has an understanding of its average booking lead-time, as this information is critical when determining whether a period of high or low occupancy is approaching.

Imagine that a hotel's reservation system indicates that 60 per cent of its accommodation rooms have been booked for a particular night in one month's time. If the hotel operates primarily in the group booking market, it may be justified in introducing a discount for the room night in question, as prior experience could indicate that high occupancy tends to only be achieved when 80 per cent of rooms have been booked one month in advance. However, if the hotel operates primarily in the business traveller market, it may be justified in raising the price of the room night in question, as prior experience could indicate that a room night typically sells out if it is 50 per cent booked up one month in advance.

Price change effects

Also fundamental to a revenue management system is historical information concerning the impact that a change in price has on the volume of sales. If we drop the price of a room night by 10 per cent, by how much do we expect room sales to increase?

The relationship between price and demand is generally referred to as the price elasticity of demand. This concept was introduced in [Chapter 12](#) where it was noted that a product or service is viewed as being price elastic if a percentage change in price results in a greater percentage change in demand. For example, imagine that a hotel has found that at a room rate of \$120 it maintains an average sales level of 500 room nights per week. In addition, it has also found that if it increases its room rate by 10 per cent to \$132, a 15 per cent reduction in demand will result, i.e., sales will drop to 425 room nights per week. As the percentage change in demand is greater than the percentage change in price, the rooms can be described as price elastic. The price elasticity of demand is generally measured using the following formula:

$$\text{Price elasticity of demand} = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}}$$

If this formula yields a value greater than 1, then the product or service in question is price elastic. If the formula yields a value less than 1, the product or service in question is price inelastic.

Demand patterns by market segment

Many hotels serve more than one market. As distinct sales distribution channels frequently apply to these different markets, hotels can simultaneously offer different room rates to different market segments. Financial decision making in [action case 16.1](#) demonstrates how different price elasticity of demand indices can apply to different market segments. Equipped with such information, the revenue manager can tailor different price offerings to different market segments.

FINANCIAL DECISION MAKING IN ACTION CASE 16.1

The Revenue Manager and price elasticity of demand

The Revenue Manager in Hong Kong's Eastern Temple Resort Hotel is discussing with colleagues a room night pricing decision. The Eastern Temple has 249 rooms and serves two distinct markets: domestic vacationers and overseas vacationers. The hotel's Revenue Manager is exploring ways to increase its projected occupancy during the first week in the up-coming August. Presently 135 of the hotel's rooms have been sold for the week at the currently advertised nightly room rate of \$100. The Revenue Manager has proposed the introduction of a substantial discount off the usual room rate for the week in question.

If no change is made in the room rate, the revenue management system predicts that 50 further room nights will be sold to the domestic vacationer market and

20 further room nights will be sold to the overseas vacationer market. The system also indicates that for the week in question, the price elasticity of demand for room night accommodation is 2.2 for the domestic vacationer market and 1.5 for the overseas vacationer market. Equipped with this information, the revenue manager has determined that the introduction of a 40 per cent discount for the domestic vacationer market represents an optimal solution to this particular revenue management issue. He has supported this view by providing the following information to the hotel's General Manager. In this analysis, the Revenue Manager has limited his focus to room nights that have yet to be sold, i.e., he has ignored the bookings that have already been made, as these cannot be changed.

Incremental daily room night revenue = Additional domestic vacationer room revenue + Additional overseas vacationer room revenue.

Incremental daily room night revenue if no room rate discounting is introduced:

$$(50 \times \$100) + (20 \times \$100) = \$5,000 + \$2,000 = \$7,000$$

Incremental revenue if 40 per cent discount is introduced for the domestic vacationer market:

Room sales to the domestic vacationer market segment will increase by 88 per cent (2.2×40 per cent) as the price elasticity of demand is 2.2. This signifies that projected rooms purchased by the domestic market will increase from 50 to 94 if the room rate drops by 40 per cent to \$60.

Therefore, incremental daily room night revenue if 40 per cent domestic vacationer market room rate discount is introduced = $(94 \times \$60) + (20 \times \$100) = \$5,640 + \$2,000 = \$7,640$.

If 40 per cent discount is introduced for the overseas vacationer market:

Room sales to the overseas vacationer market segment will increase by 60 per cent (1.5×40 per cent) as the price elasticity of demand is 1.5.

Incremental daily room night revenue if 40 per cent overseas vacationer market room rate discount is introduced = $(50 \times \$100) + (32 \times \$60) = \$5,000 + \$1,920 = \$6,920$.

As revenue is maximised if the 40 per cent discount for the domestic vacationer market is introduced, this represents the preferred course of action.

Overbooking policy

Due to the frequency of last minute cancellations and also guest "no-shows", many hotels operate an overbooking policy. This means taking more bookings for a particular night than a hotel is able to meet, for instance, a 500-room hotel may accept 505 bookings for a particular night. As the application of an overbooking policy effectively increases the number

Revenue management

of room bookings that a hotel is willing to accept, this factor needs to be incorporated into a hotel's revenue management system.

While application of an overbooking policy will likely increase occupancy rates, it also carries obvious risks. On an overbooked day when no guest cancels and there are no "no-shows", a hotel will have to deal with irate guests for whom it cannot find a room. Strategies that can be applied in such a situation include having arrangements with neighbouring hotels to accommodate displaced guests, providing a displaced guest with alternative accommodation, paying for the displaced guest's accommodation or offering displaced guests with some other compensation. Managing such a situation can be highly stressful for front office staff. Particular care should be taken not to alienate a guest who is a loyal customer. These issues highlight the fact that prior to adopting an overbooking policy, careful consideration should be made of the risk and downside implications.

6) Using rate categories and demand forecasts

Most revenue management systems are built upon a framework of price categories. For rooms in a hotel, we talk of room rate categories. We might establish a room pricing system whereby rate category 1 refers to rooms sold with no discount, rate category 2 refers to rooms sold at a 1–10 per cent discount, rate category 3 refers to rooms sold at a 11–20 per cent discount, etc. [Box 16.1](#) illustrates how room rate categories can be used when attempting to maximise a hotel's revenue for a particular night. It also illustrates the on-going monitoring of whether room bookings are in line with projected sales levels and how failure to reach originally anticipated booking levels for a particular night can result in the opening up of initially withheld rate categories.

Box 16.1

Using rate categories and demand forecasts to maximise revenue

The 300 room Emerald Hotel has broken up its customer base into several distinct market segments. For most of the year, it operates four distinct room rate categories. On 2nd January, based on prior years' data, the hotel developed the following segmented sales projection for room sales on 1st November.

Rate category	Discount off rack rate	Available rooms	Demand forecast
1	None	300	90
2	1–10%	210	110
3	11–20%	100	130
4	21–35%	0	150

To make sense of this data, we should move down the 4 rate categories. The hotel projected that on 1st November it would sell 90 rooms with no room

discount applied (rate category 1). This leaves 210 of the hotel's 300 rooms available for sale to rate category 2 (1–10 per cent rate discount). The hotel's revenue management system predicted that it would sell 110 rooms at rate category 2, leaving 100 rooms available for rate category 3 customers. The projected rate category 3 level demand was 130 rooms, signifying no rooms left to be allocated to rate category 4. If, however, rooms had been released at the rate category 4 level, on 2nd January the system predicted 150 further room nights would be sold.

Now imagine that today is 1st October and the hotel's reservation system is indicating that the following room reservations have been made for the night of 1st November.

Rate Category	Rooms sold	Originally expected sales 30 days out
1	40	80
2	86	82
3	123	126
4	–	–

This schedule's middle column reflects the number of rooms already sold and the final column reflects the 1st November room bookings that the revenue management system had originally projected would be sold by 1st October. The schedule shows that while rate categories 2 and 3 have performed approximately as expected, rate category 1 room bookings are 50 per cent below their originally forecast level.

Analysis implications: The fact that rate category 1 room sales are well below expectation signifies that if management does nothing, there is likely to be a significant shortfall in the originally projected 1st November room night sales. Emerald's management should therefore seriously consider releasing some rate category 1 rooms to some of the lower revenue rate categories. A case might even be made for now offering some 1st November room nights at the rate category 4 level.

7) Length of stay controls

Rate category control focuses on the idea of having a room night available for occupancy at a future date and deciding whether to sell it at a discounted rate today or to hold out with the hope of selling it at a higher rate in the future. Length of stay issues have a distinctly different focus. Revenue management systems not only have to deal with the fact that room bookings differ with respect to the room rate paid, they also differ with respect to guests' length of stay. An example of how a revenue management becomes involved with length of stay management issues is described in [Box 16.2](#).

Box 16.2

Length of stay revenue management

Imagine that our hotel has one remaining room to be booked for the night of 20th June which coincides with a major local sporting event. Immediately following the event, on the 21st June, we are anticipating a large exodus of guests, and that our hotel will be running at 60 per cent occupancy on the nights of 21st, 22nd and 23rd June. Our revenue manager knows that we will have little problem selling the one remaining room night on 20th June for its rate category 1 price of \$200. He also projects that if we hold this last remaining single room night sale back, there is a high likelihood that we can sell it as the first night of a “four room nights at \$150 per night” package deal. Should we sell the 20th June room night as a stand-alone sale for \$200, or should we sell it as the first night of a “four room nights at \$150 per night” package?

If the 20th June room night is sold as a stand-alone, our hotel’s revenue will increase by \$200. If the 20th June room night is sold as part of the four room night package, however, our hotel’s revenue will increase by \$600 ($4 \times \150). This signifies that the total positive impact on revenue is \$400 greater ($\$600 - \200) if we sell the room as part of a “four room nights at \$150 per night” package instead of the stand-alone 20th June room night sale option.

This revenue analysis misses one important issue, however. The sale of the room for four nights would trigger room cleaning costs for three more days than if we were to sell the room as a stand-alone room night. Imagine that we have determined that the variable cost of daily room cleaning is \$30. If this is the case, a \$310 positive impact on profit results from using the room as part of a “four room nights at \$150 per night” package instead of a \$200 stand-alone room night sale (increased revenue of \$400 minus three days extra room cleaning costs at \$30 per day). This analysis signifies the hotel should sell the last 20th June room night as part of a “four room nights at \$150 per night” package and not as a stand-alone room night sale, as the four night package sale will generate \$310 more in profit.

Length of stay management requires prior data concerned with how many guests are likely to book for what length of stay periods throughout the year. The complexity of this information underscores the importance of having a computer-based revenue management system.

A Revenue Manager needs to know the projected number of check-ins on a particular day for 1 night, 2 night, 3 night stays, etc. Consistent with the type of analysis provided in [Box 16.2](#), this will help in determining if there is a justification in turning away a 1 night booking (or maybe a 2 or 3 night booking). Armed with this information, the revenue management system will enable a manager to prevent short length of stay reservations from starting on a key date. For instance, a manager may wish to prevent 1, 2 and 3 day bookings starting on the 25th June. He would be motivated to do this if he felt that these shorter period bookings would displace yet-to-be-reserved one week bookings starting on 25th June.

8) Managing group bookings

Too many managers think that revenue management revolves exclusively around using forecast data to determine when discounted group bookings should be turned away. There is a more subtle side to revenue management, however. Instead of turning away undesirable sales, it can pursue a philosophy of converting undesirable room sales into desirable room sales.

We will now explore two ways that undesirable room sales can be converted into desirable room sales. Firstly, we will examine the financial implications arising if a tour operator can be enticed to change the dates of a proposed group booking, then we will look at the financial implications that can result if a tour operator is enticed to reduce the size of a proposed group booking. [Box 16.3](#) provides an example of how a hotel can profit from persuading a tour booking agent to change the date of a planned group booking.

Box 16.3

Changing the timing of a group booking

The 250-room GraciousGrounds Hotel has been approached by a tour operator who wants to book 60 rooms at the per room group room rate of \$100 on a particular night in six months' time. The hotel's revenue management system projects that for the night in question, if it does not take the group booking, it will sell 225 rooms at \$140 each.

GraciousGrounds' revenue manager provides the following analysis to determine whether the hotel should accept the group booking:

Revenue without the group booking: $225 \text{ rooms} \times \$140 = \$31,500$

Revenue with the group booking:

Revenue from non-group bookings: $190 \text{ rooms} \times \$140 = \$26,600$

Revenue from group booking: $60 \text{ rooms} \times \$100 = \$6,000$

Total revenue with the group booking = $\$32,600 (\$26,600 + \$6,000)$.

Based on this analysis, it appears that the group booking should be accepted, as it will provide \$1,100 more revenue ($\$32,600 - \$31,500$). It is of concern, however, that acceptance of the \$6,000 group booking (60 rooms at \$100) has resulted in revenue increasing by only \$1,100 above what it would have been had the group booking not been accepted.

The GraciousGrounds' Revenue Manager is smart and decides to try a different approach to dealing with this situation. Based on her awareness that a 60 per cent occupancy is projected at the hotel one week following the date that the tour operator is wishing to book, she says to the agent "As you

have always been a very good client of ours, I want to give you an extra 5 per cent room rate discount, if you make your booking one week later". The tour operator likes what he hears and takes up the offer.

Now, for the later date, let's determine the incremental revenue resulting from the group booking:

Revenue without the group booking (60 per cent occupancy): 150 rooms \times \$140 = \$21,000

Revenue with the group booking:

Revenue from non-group bookings = 150 rooms \times \$140 = \$21,000

Revenue from 5 per cent discounted group booking = 60 rooms \times \$95 = \$5,700

Total revenue for the night with the group booking = \$26,700 (\$21,000 + \$5,700).

By deferring the group booking by one week, the Revenue Manager has managed to raise the revenue from the night in question by \$5,700 (from \$21,000 to \$26,700). This means that the group booking provides a \$4,600 (\$5,700 – \$1,100) greater beneficial impact on revenue if the booking is made a week later. This provides justification for the Revenue Manager deciding to give the tour operator a 5 per cent room rate discount incentive to accept the later group booking date.

The analysis provided in [Box 16.3](#) provides a comprehensive overview of the changed impact on revenue that results from moving a group booking from a high occupancy period to a low occupancy period. The key to the issue described in [Box 16.3](#) is the fact that if the group booking is made during the high occupancy period, 35 potential premium rate paying guests will be displaced by lower "group rate" paying guests. The analysis provided in [Box 16.3](#) can actually be simplified by taking the following approach:

Incremental revenue impact if group booking is made on the earlier date:

Incremental revenue from group booking: 60 rooms \times \$100 = \$6,000

Lost revenue from displaced premium room rate guests: (\$140 \times 35) = \$4,900

Net incremental revenue impact from early group booking = \$1,100 (\$6,000 – \$4,900)

Incremental revenue impact if group booking is made on the later date:

60 rooms \times \$95 = \$5,700.

As the incremental revenue impact of the later booking is \$4,600 more (\$5,700 – \$1,100) than if the early booking is made, the later group booking is the preferred option.

Box 16.4 provides an example of how revenue can be increased by changing the number of rooms allocated to a group booking. This box demonstrates that incremental revenue can be increased if the number of higher rate room night sales displaced by lower rate room night sales can be reduced by lowering the number of rooms allocated to the cheaper rate group booking.

Box 16.4

Changing the size of a group booking

Imagine now that for the case described in Box 16.3, the tour operator turned down the offer of making the group booking a week later. He explained that he has no date flexibility, as the timing of all of the tour's activities are already finalised. Still motivated by a desire to avoid the prospect of the group booking displacing 35 premium rate paying guests, GraciousGrounds' Revenue Manager plays another card. She says to the agent "OK, I think I know of a way that I can double that room rate discount offer. I will discount the room rate by 10 per cent if you can find a way to reduce the number of rooms that you need in your group booking from 60 rooms to 25 rooms". The tour operator then takes a day to work out whether he can reduce the size of his group booking and then comes back to the Revenue Manager indicating that he is happy to take her up on the 25 rooms at \$90 per room offer.

Let us now see how much the hotel's incremental revenue increases as a result of reducing the group booking reduction from 60 to 25 rooms.

Total room revenue if the 60 room group booking is made:

Revenue from non-group bookings: $190 \text{ rooms} \times \$140 = \$26,600$

Revenue from group booking: $60 \text{ rooms} \times \$100 = \$6,000$

Total revenue for the night = $\$32,600$ ($\$26,600 + \$6,000$).

Total room revenue if the 25 room discounted group rate booking is made:

Revenue from non-group bookings: $225 \text{ rooms} \times \$140 = \$31,500$

Revenue from group booking: $25 \text{ rooms} \times \$90 = \$2,250$

Total revenue for the night = $\$33,750$ ($\$31,500 + \$2,250$).

This analysis demonstrates that \$1,150 more revenue results ($\$33,750 - \$32,600$) if the 25 room \$90 group booking is made relative to the 60 room \$100 group booking. The higher net incremental revenue resulting from the 25 room group booking financially justifies GraciousGrounds' Revenue Manager's decision to offer the \$10 room rate discount as an incentive for the tour operator to reduce the number of rooms booked.

9) Revenue management implementation issues

Avoid alienating customers

Customers may be more accepting of revenue management in some industries relative to others. For instance, airline customers appear to have grown accustomed to the notion that airlines charge different rates for equivalent seats on the same flight. Hotel customers may be not as accustomed to the application of revenue management in the hotel sector. Hotels will need to establish procedures for dealing with an irate customer who arrives at the registration desk and starts complaining that following a poolside chat with another guest, they have just discovered that they are paying 20 per cent more per night, and would like a hotel manager to explain this inequity.

Minimise negative staff morale issues

Revenue management systems greatly reduce the guesswork associated with decisions concerning room rate levels and the release of group bookings. This can frustrate a manager who has been used to exercising discretion in making such decisions. It can therefore be important to view a revenue management system more as a resource than as a finite decision maker.

Staff reward and incentive systems

Many staff in group-sales departments have been rewarded based on the volume of group sales achieved. Such a reward system should be modified, however, if a revenue management system is being implemented. This is because a revenue management system can result in the acceptance of a reduced number of group bookings. Also, no managers should be rewarded based on occupancy levels or average room rates achieved. Staff should be rewarded on Revpar performance, as this is the measure that will most closely align them to a revenue management system's focus.

Training of staff

As with all new systems, the introduction of a revenue management system will necessitate staff training, if the system is to deliver to its potential. Generally, the staff most closely involved in this training are the sales, reservations and front office personnel.

Organisation of the revenue management function

While a revenue management system needs to have a property level focus, it obviously needs to be integrated with a hotel chain's central reservation system.

Senior management commitment

As with any system, in order for a revenue management system to run smoothly and achieve its potential to raise a property's revenue level, it needs to have strong support from senior management. It is only when a revenue management system has strong "buy-in" from senior hotel management, that it will be embraced as an important tool and philosophy.

10) Words of caution in applying the revenue management philosophy

While this chapter has highlighted approaches that can be taken to maximise revenue on any particular day, care should be taken not to inflict long-term damage as a result of maximising a particular night's revenue. Examples of ways that maximising revenue on a particular day might damage long-term performance include:

- Extensive room rate discounting can tarnish the image of an up-market resort.
- Maximising the inventory of rooms sold can result in no rooms retained for last minute loyal guest bookings. If a loyal guest who travels extensively for business, with little notice provided, finds he has not been able to make a late booking at a hotel on a couple of occasions, his loyalty may be diverted to a competitor.
- If an agent who has brought much group-booking business to a hotel is denied the opportunity to make a group booking, he may in the future take his business elsewhere.

It is also worth noting that revenue management may not be an appropriate philosophy to apply in all hotels. For some hotels it may be appropriate to adopt a very simple pricing approach. Take the example of a roadside motel, located close to a highway exit and with no competing hotels in close proximity. Such a motel may experience little demand seasonality and primarily deal with guests who do not make reservations and generally stay for only one night. In this case, it might be quite appropriate for the motel manager to set the price of the first room night sold at the same level as the price of the last room night sold, as potential guests are not shopping around for the best price they can find. If guests are not “price-shopping”, the motivation for applying a revenue management approach to setting room rates is largely eliminated.

In exploring the application of revenue management, we have exclusively focused on the setting of room rates. It should be noted, however, that a room sale does not only trigger a contribution to hotel profitability from the room rate received. Many guests will eat at the hotel's restaurant, drink at the bar, make purchases from their mini-bar, etc. These “supplementary purchases”, which add to a hotel's profitability, all derive from room night sales (Guilding et al. 2001). If a hotel has strong data indicating that one market segment has a greater propensity to make “supplementary purchases” than another market segment, a strong case can be made to include market segment differential supplementary purchasing propensities in revenue management decision making. This issue need not represent a major stumbling block for revenue managers, however, as the “total yield” facet of a guest's stay can be easily dealt with by most sophisticated revenue management computer systems.

11) Summary

This chapter has described the nature of revenue management systems and how revenue management approaches can be used in a range of ways to increase revenue. We noted that a fundamental concept of revenue management concerns the striking of an appropriate balance between minimising revenue lost as a result of unsold rooms and minimising lost revenue resulting from selling rooms at prices below what that they could have been sold for.

Having read the chapter you should now know:

Revenue management

- how to appraise a hotel's need for improved revenue management decision making,
- how rate categories can be used in combination with demand forecasts in an attempt to increase total revenue,
- how length of stay controls can be implemented in an attempt to increase total revenue,
- how attempts can be made to change the timing of group bookings in an attempt to increase total revenue,
- how attempts can be made to change the size of group bookings in an attempt to increase total revenue.

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Problems

Problem 16.1

Explain why the existence of low variable costs is a business characteristic that is conducive to the application of revenue management.

Problem 16.2

Identify five industry factors that are conducive to the application of revenue management.

Problem 16.3

Identify three ways that a hotel can assess its revenue management performance and gauge whether it needs to implement revenue management.

Problem 16.4

The following table provides an analysis of the rooms division revenue earned by the Classic Hotel in the last 30 days, relative to its three closest competitors.

Classic Hotel: Competing hotels revenue comparison						
Hotel	Number of rooms	Market share capacity	Room nights sold	Room nights share	Room revenue	Room revenue share
Classic	160	25.00%	3,840	28.26%	\$460,800	23.38%
A	140	21.87%	3,150	23.18%	\$472,500	23.97%
B	160	25.00%	3,360	24.72%	\$487,200	24.71%
C	180	28.13%	3,240	23.84%	\$550,800	27.94%
Total	640	100%	13,590	100%	\$1,971,300	100%

Required:

- Calculate the occupancy, ADR and Revpar penetration indices for the Classic Hotel.
- Based on this analysis, how well does the Classic Hotel appear to be performing with respect to revenue management.
- Based on your answer provided in a), which aspect of revenue management do you believe provides greatest scope for improved performance for the Classic Hotel: 1) minimising the loss of revenue resulting from rooms not being sold, or 2) minimising the loss of revenue resulting from selling rooms at prices below what they could have been sold for.

Problem 16.5

Over the last year, the Regal Hotel has achieved an occupancy rate of 68 per cent and a \$140 average daily rate (ADR) for room nights sold. The Regal Hotel competes closely with three other hotels. During the last year, this four hotel competitive set has achieved a market occupancy percentage of 72 per cent and a market ADR of \$124.

Required:

- Calculate the occupancy, ADR and Revpar penetration indices for the Regal Hotel.
- Based on this analysis, how well does the Regal Hotel appear to be performing with respect to revenue management.
- Based on your answer provided in a), which dimension of revenue management do you believe provides greatest scope for improved performance by the Regal Hotel: 1) minimising the loss of revenue resulting from rooms not being sold, or 2) minimising the loss of revenue resulting from selling rooms at prices below what they could have been sold for.

Problem 16.6

Barcelona's BullFighter Hotel has 198 rooms and serves two distinct markets: business travellers and tourists. The hotel is considering trying to raise its occupancy in a particular week in four months' time. Presently 120 of the hotel's rooms have been sold for the week at the advertised nightly room rate of (120). If no change is made in the room rate, the revenue management system predicts that 32 further room nights will be sold to the business traveller segment and 20 further room nights will be sold to the tourist market. The system also indicates that for the week in question, the price elasticity of demand for room night accommodation is 2.5 for the business traveller market and 1.6 for the tourist market.

Revenue management

The hotel's Revenue Manager has recommended that a 30 per cent discount should be introduced for bookings made by the business traveller market. He warns, however, that dropping the room rate for this market to €84 will signify some lost revenue as the business guests who are currently intending to book a room will now be able to purchase their room nights for €36 less.

Required:

Prepare a financial analysis to determine if the Revenue Manager's 30 per cent discount for business travellers recommendation is well justified.

Problem 16.7

The LeafyLodge Hotel has one remaining room to be booked for the night of 1st August. The hotel is expecting a relatively low occupancy, however, during the subsequent six days. LeafyLodge's Revenue Manager is confident that the last room to be booked on 1st August could be sold for \$250. As an alternative, the room could be booked as the first night of a "three room nights at \$120 per night" package. Variable room cleaning costs are \$25 per room night sold.

Required:

Demonstrate whether the LeafyLodge Hotel should sell the 1st August room night as a single night sale for \$250, or as the first night of a "three room nights at \$120 per night" package.

Problem 16.8

The 400-room LuxuriousLayback Hotel has been approached by a tour operator who is seeking to book 80 rooms at the per room group room rate of \$75 on a particular night in six months' time. The hotel's revenue management system projects that for the night in question, if it does not accept this group booking, it will sell 360 rooms (90 per cent occupancy) at \$120 each.

The hotel's manager has asked you to assist in providing an analysis to determine whether the hotel should try to get the tour operator to move the room booking into its low season, which is projected to commence three weeks after the tour operator's requested booking date. During the low season, LuxuriousLayback seldom surpasses a 70 per cent occupancy rate. The hotel manager feels that if the tour operator were to be offered a discounted group room rate of \$70 for the later booking date, he would likely take the offer.

Required:

Provide a financial analysis to determine if it is financially justifiable to provide the tour operator with a \$5 room rate discount to encourage him to move his 80-room block booking from the projected 90 per cent occupancy period to a 70 per cent occupancy period.

Problem 16.9

The 300-room GreatWall Hotel in Beijing has been approached by a tour operator seeking to book 70 rooms at the group room rate of Y300 per room on a particular night in 22 weeks' time. The hotel's revenue management system projects that for the night in question, if it does not take the group booking it will sell 260 rooms at Y450 each.

The hotel's revenue manager is aware that two weeks after the proposed group booking date, the hotel will be operating at a 70 per cent occupancy and is considering offering the

tour operator a lower room rate if he is willing to move the group booking back by two weeks. He knows that a large room rate discount will have to be offered to entice the agent to move the block booking back by two weeks, but is uncertain how much of a room rate discount is financially justifiable.

Required:

Prepare an analysis to determine the maximum room rate discount that the revenue manager can financially justify in seeking to move this room block booking back by two weeks.

Problem 16.10

Osaka's PowderSki Hotel has been approached by a tour operator wanting to book 30 rooms for one week at the group rate of ¥70,000 per room. The hotel has 110 rooms. The hotel's Revenue Manager has predicted that if the booking is not accepted, the hotel will be able to achieve an 80 per cent occupancy with all guests paying a weekly room rate of ¥100,000. PowderSki's Revenue Manager is concerned about the displacement of higher rate paying guests if the group booking is accepted and is thinking about cutting the weekly room rate to ¥60,000 if the tour operator can find a way to reduce the size of his room allocation request to 22 rooms.

Required:

Prepare a financial analysis to determine whether PowderSki's Revenue Manager can be justified in offering the ¥60,000 discounted room rate to the tour operator.

Problem 16.11

The MightyAllBlacks Hotel in Wellington has 200 rooms and specialises in hosting guests attending sport events at the Wellington Regional Stadium. The hotel's Revenue Manager has just received an email from a tour operator client who is indicating that he would like to book 50 rooms for a Friday and Saturday night in four months' time at \$100 per room night. The hotel's revenue management system is predicting that the hotel will achieve 88 per cent occupancy for the two nights in question if the 50-room group booking is not accepted. This occupancy level would comprise guests who are paying a non-discounted room rate of \$150. Knowing that many rugby tour guests are not averse to sharing a room if rates are discounted, the hotel's Revenue Manager is considering providing the tour operator with the following two options:

- Nightly room rates discounted to \$95 if the tour operator can consolidate the group booking down to 40 rooms.
- Nightly room rates discounted to \$90 if the tour operator can consolidate the group booking down to 25 rooms.

Required:

- a) Prepare a financial analysis to demonstrate whether the MightyAllBlacks Hotel's Revenue Manager would be justified in offering the room rate discounts that are under consideration.
- b) If the manager is justified in offering these discounted room rate options, which one is preferred from the hotel's perspective?

Problem 16.12

Rio de Janeiro's BeachView Hotel is considering a group booking opportunity to sell 50 rooms on a particular night in four months' time at a room rate of R\$200. The hotel has 250 rooms. The hotel's revenue management system is predicting that if the group booking is not accepted, the hotel will sell 225 room nights on the night in question, with all rooms sold at the hotel's rate category 1 level which is R\$250. The hotel's Revenue Manager is concerned that if the group booking is accepted, some high rate paying guest bookings would be displaced. As a result, the Revenue Manager is considering providing the following two options to the group booking agent:

- Discounting the group room rate to R\$170 if the agent would move the booking date to two weeks later. If the group booking could be moved to the later date, it would signify that no hotel guests paying a higher rate would be displaced.
- Discounting the group room rate to R\$190 if the agent would consolidate the group booking down to 25 rooms.

Required:

- a) Prepare a financial analysis to demonstrate whether the two room rate discounting options that the Revenue Manager is considering are financially justifiable.
- b) If the manager is justified in offering these discounted room rate options, which one is preferred from the hotel's perspective?

Solutions to first three problems in each chapter

CHAPTER 1

Introduction

Problem 1.1: Solution

- a) Functional interdependency exists when the performance of one functional area is affected by the performance of a separate functional area. For example, in a hotel complex that is dominated by a casino, the success of the rooms and food and beverage departments will be affected by the success of the casino operations in attracting clients to the complex.
- b) Functional interdependency is an important issue for the designers of a hotel's system of accountability because care should be taken to hold a manager accountable for only those aspects of the hotel's performance that he or she can influence. For example, the heads of rooms and food and beverage departments should not be held accountable for a decrease in their room sales if it is caused by reduced casino activity.

Problem 1.2: Solution

- a) The four main dimensions of sales volatility in the hotel industry are:
 - 1. economic cycle induced sales volatility,
 - 2. seasonal sales volatility,
 - 3. weekly sales volatility,
 - 4. intra-day sales volatility.
- b) The implications that these dimensions of sales volatility carry for hotel accounting systems are as follows:
 - 1. **Economic cycle induced volatility:** Hotel sales' high susceptibility to general economic conditions highlights the importance of hotels carefully forecasting economic cycles as part of the annual budgeting process.
 - 2. **Seasonal sales volatility:** Three accounting implications arise:
 - Seasonal sales volatility can be so severe to warrant temporary closure for some resort properties. This possibility of having to make a closure decision signifies that cost and revenue data should be recorded in a manner that will enable a well informed financial analysis of the pros and cons of closing.
 - Seasonal sales volatility can also pose particular cash management issues. During the middle and tail-end of the busy seasons, surplus cash balances are likely to result, while in the off-season and the build up to the busy season, deficit cash balances are likely to result. Careful cash budgeting will therefore need to be conducted.

Solutions to first three problems in each chapter

- Seasonal sales volatility will also affect price discounting decisions. To ensure such decisions are well informed, careful forecasting as part of the annual budgetary process will have to be conducted.
- 3. **Weekly sales volatility:** Accurate forecasting of weekly sales volatility will inform management's decision making with respect to the amount and timing of room rate discounting, staffing needs as well as restaurant purchasing needs.
- 4. **Intra-day sales volatility:** Intra-day demand volatility has led to widely used pricing strategies such as "early bird specials" in restaurants and "happy hours" in bars. Records concerning demand at different times of the day will have to be maintained in order to inform such hotel pricing issues.

Problem 1.3: Solution

Examples of business decisions requiring the use of financial accounting data include:

- (a) A bank manager deciding whether to lend money to a company.
- (b) A shareholder deciding whether to sell her shares due to a fear that the company she has invested in might go bankrupt.
- (c) A potential shareholder thinking about purchasing shares in a company and interested in determining if the company is profitable.

Examples of business decisions requiring the use of management accounting data include:

- (a) Determining whether accounts are being collected on time.
- (b) Determining whether the business will have sufficient cash over the next year to avoid the need to arrange a line of credit.
- (c) Determining whether a drinks vending machine or a confectionery vending machine should be installed in a hotel's foyer area.
- (d) Determining what room rate to charge to achieve a target level of profit.
- (e) Determining whether a seasonal hotel should be closed down during the quiet season.
- (f) Determining whether a restaurant manager is performing well.

CHAPTER 2

Analysing transactions and preparing year-end financial statements

Problem 2.1: Solution

- a) Simply defined, assets are things that are owned by a business. Typical hotel assets include: cash, accounts receivable, prepayments, inventory, cars, china, silver, glass, linen, uniforms, equipment, land and buildings.
- b) Simply defined, liabilities comprise financial obligations of the organisation. Typical liabilities include: wages and salaries payable, accounts payable and bank loans.
- c) Simply defined, owners' equity represents the residual claim that owners have on the assets of an organisation subsequent to the acquittal of all liabilities. Owners' equity increases

when owners introduce more funds to the organisation and when the organisation makes profit.

Problem 2.2: Solution

The balance sheet equation relates to the fact that assets minus liabilities equals owners' equity. The equation can also be stated as assets equal liabilities plus owners' equity.

Underlying the first equation is the notion that the value of the owners' equity in a business equals the surplus assets that would remain following acquittal of all liabilities. Sense can also be made of the second equation as a business raises money and then invests the money in various assets.

Problem 2.3: Solution

Analysis of SerenitySleep Hotel's financial transactions in first 10 days of June

June	Assets				=	Liabilities		+	Owners' Equity	
	<i>Cash at Bank</i>	<i>Accounts Receivable</i>	<i>Inventory</i>	<i>Office equipment</i>		<i>Accounts Payable</i>	<i>Loan Payable</i>		<i>Capital</i>	<i>Profit or Loss</i>
1	+20,000								+20,000	
2	-3,000			+3,000						
3	-900		+900							
4			+1,400			+1,400				
5	-1,500			+6,000			+4,500			
6		+1,000								+1,000
7	-800								-800	
8	+1,300									+1,300
9			-400							-400
10	-240									-240
	14,860	1,000	1,900	9,000		1,400	4,500		19,200	1,660
	\$26,760				=	\$5,900		+	\$20,860	

CHAPTER 3

Double entry accounting

Problem 3.1: Solution

No, it is inappropriate and misleading to suggest a debit to an account represents a good or a bad thing. It is true that a debit to the cash or bank account may be seen as beneficial as it signifies that an inflow of money has occurred. However, a debit to an expense account signifies an increase in the expense account and not many businesses would regard an increase in an expense as beneficial. We can conclude that we can only say that a debit to an account is a good thing if we know what type of account we are talking about.

Problem 3.2: Solution

No, in double entry accounting we cannot say that a debit represents a plus and a credit represents a minus. Debiting an asset account will usually represent a plus as asset accounts generally have a debit balance (the bank account can be an exception, however, if it is overdrawn). Liability accounts (e.g., accounts payable), however, generally have a credit balance, therefore a debit entry will have the effect of reducing the account's credit balance.

Problem 3.3: Solution

a)	<table><tr><th colspan="2">Bank</th></tr><tr><td>4,000</td><td></td></tr></table>	Bank		4,000		<table><tr><th colspan="2">Owners' equity</th></tr><tr><td></td><td>4,000</td></tr></table>	Owners' equity			4,000
Bank										
4,000										
Owners' equity										
	4,000									
b)	<table><tr><th colspan="2">Beer inventory</th></tr><tr><td>5,000</td><td></td></tr></table>	Beer inventory		5,000		<table><tr><th colspan="2">Accounts payable</th></tr><tr><td></td><td>5,000</td></tr></table>	Accounts payable			5,000
Beer inventory										
5,000										
Accounts payable										
	5,000									
c)	<table><tr><th colspan="2">Bar snacks inventory</th></tr><tr><td>450</td><td></td></tr></table>	Bar snacks inventory		450		<table><tr><th colspan="2">Cash</th></tr><tr><td></td><td>450</td></tr></table>	Cash			450
Bar snacks inventory										
450										
Cash										
	450									
d)	<table><tr><th colspan="2">Equipment</th></tr><tr><td>1,000</td><td></td></tr></table>	Equipment		1,000		<table><tr><th colspan="2">Accounts payable</th></tr><tr><td></td><td>1,000</td></tr></table>	Accounts payable			1,000
Equipment										
1,000										
Accounts payable										
	1,000									
e)	<table><tr><th colspan="2">Bank</th></tr><tr><td>350</td><td></td></tr></table>	Bank		350		<table><tr><th colspan="2">Revenue</th></tr><tr><td></td><td>350</td></tr></table>	Revenue			350
Bank										
350										
Revenue										
	350									
f)	<table><tr><th colspan="2">Cost of sales</th></tr><tr><td>150</td><td></td></tr></table>	Cost of sales		150		<table><tr><th colspan="2">Beer inventory</th></tr><tr><td></td><td>150</td></tr></table>	Beer inventory			150
Cost of sales										
150										
Beer inventory										
	150									

CHAPTER 4

Adjusting and closing entries

Problem 4.1: Solution

“Adjusting entries” is the term used to describe the set of bookkeeping entries that need to be made in order to update some accounts prior to the preparation of the accounting year-end income statement and balance sheet. This “tidying up” of accounts, which is really what the adjusting entries represent, has to be completed prior to closing entries. In many cases, the need for adjusting entries arises because the timing of cash flows (either receipts or disbursements) does not coincide with the period in which it is appropriate to recognise the revenue or expense. This distinction between the timing of a cash flow and the timing of the recognition of a revenue or an expense item stems from the accrual concept of accounting which holds that:

- revenue is recognised when it is earned and certain, rather than simply when cash is received,
- an expense is recognised in the period when the benefit derived from the associated expenditure arises.

Closing entries involve rolling all the accounts that feed into the income statement (plus the drawings account) back to zero at the end of the accounting year. For this reason, these accounts are sometimes referred to as temporary accounts. Accounts that feed directly into the balance sheet are sometimes referred to as permanent accounts as they are not rolled back to zero at the end of the accounting year. The revenue, expense and drawings accounts have to be wound back to zero at the end of the accounting year, otherwise they would carry amounts that relate to the business since its inception, rather than the current accounting year.

Problem 4.2: Solution

a)	<table><tr><th colspan="2">Telephone expense</th></tr><tr><td>500</td><td></td></tr></table>	Telephone expense		500		<table><tr><th colspan="2">Telephone payable</th></tr><tr><td></td><td>500</td></tr></table>	Telephone payable			500
Telephone expense										
500										
Telephone payable										
	500									
b)	<table><tr><th colspan="2">Rent expense</th></tr><tr><td>2,400</td><td></td></tr></table>	Rent expense		2,400		<table><tr><th colspan="2">Rent accrued</th></tr><tr><td></td><td>2,400</td></tr></table>	Rent accrued			2,400
Rent expense										
2,400										
Rent accrued										
	2,400									
c)	<table><tr><th colspan="2">Depreciation expense</th></tr><tr><td>1,000</td><td></td></tr></table>	Depreciation expense		1,000		<table><tr><th colspan="2">Accumulated depreciation</th></tr><tr><td></td><td>1,000</td></tr></table>	Accumulated depreciation			1,000
Depreciation expense										
1,000										
Accumulated depreciation										
	1,000									

Solutions to first three problems in each chapter

d)	<table><tr><th colspan="2">Salary & wage expense</th></tr><tr><td>70,000</td><td></td></tr></table>	Salary & wage expense		70,000		<table><tr><th colspan="2">Salaries & wages accrued</th></tr><tr><td></td><td>70,000</td></tr></table>	Salaries & wages accrued			70,000
Salary & wage expense										
70,000										
Salaries & wages accrued										
	70,000									
e)	<table><tr><th colspan="2">Unearned revenue</th></tr><tr><td>1,200</td><td></td></tr></table>	Unearned revenue		1,200		<table><tr><th colspan="2">Revenue</th></tr><tr><td></td><td>1,200</td></tr></table>	Revenue			1,200
Unearned revenue										
1,200										
Revenue										
	1,200									
f)	<table><tr><th colspan="2">Rental revenue</th></tr><tr><td>400</td><td></td></tr></table>	Rental revenue		400		<table><tr><th colspan="2">Unearned revenue</th></tr><tr><td></td><td>400</td></tr></table>	Unearned revenue			400
Rental revenue										
400										
Unearned revenue										
	400									

Problem 4.3: Solution

a)

1

Cash	
92,000	

Accounts receivable	
O.B. 141,500	92,000

2

Accounts receivable	
141,500	
101,000	92,000

Revenue	
	O.B. 1,320,000
	101,000

- b) The first entry is to record the write down of the accounts receivable for the 180 days due balance:

<table> <tr><th colspan="2">Allowance for doubtful accounts</th></tr> <tr><td>4,500</td><td>O.B. 2,400</td></tr> </table>	Allowance for doubtful accounts		4,500	O.B. 2,400	<table> <tr><th colspan="2">Accounts receivable</th></tr> <tr><td>141,500</td><td>92,000</td></tr> <tr><td>101,000</td><td>4,500</td></tr> </table>	Accounts receivable		141,500	92,000	101,000	4,500
Allowance for doubtful accounts											
4,500	O.B. 2,400										
Accounts receivable											
141,500	92,000										
101,000	4,500										

Following the review of the accounts receivable ledger, it has been determined that the allowance for doubtful accounts should have a credit balance of \$2,080 $[(\$84,000 \times 0.0075) + (\$44,000 \times 0.0125) + (\$18,000 \times 0.05)]$.

An inspection of the balance on the “allowance for doubtful accounts” account reveals that following the above debit entry of \$4,500, it has a debit balance of \$2,100. In order to achieve the requisite closing credit balance of \$2,080, an adjusting credit entry of \$4,180 has to be made to the “allowance for doubtful accounts”. This adjusting entry signifies that the allowance for doubtful accounts entries made throughout the year were insufficient to reflect the doubtful account reality at the year-end. It is presumed that through the year, when the

monthly entry has been made to allow for doubtful accounts, the “bad debts expense” account has been debited. Accordingly, we need to increase the bad debts expense account at the year-end, i.e., make an adjusting debit entry of \$4,180 to the “bad debts expense” account.

Allowance for doubtful accounts		Bad debts expense	
4,500	2,400	O.B. 12,400	
	4,180	4,180	

CHAPTER 5

Financial statement analysis

Problem 5.1: Solution

a)

Dupont (ROI)	$\frac{\text{EBIT}}{\text{T.A.}}$	=	$\frac{\text{EBIT}}{\text{Revenue}}$	×	$\frac{\text{Revenue}}{\text{T.A.}}$
HoJo:	$50 \div 250$ 0.2	=	$50 \div 500$ 0.1	×	$500 \div 250$, 2
EasyRest	$15 \div 75$ 0.2	=	$15 \div 300$ 0.05	×	$300 \div 75$, 4

b) Both companies' F&B activities have achieved a 20 per cent return on total assets. However, their methods of achieving this return have been quite different. HoJo has earned a 10 per cent profit margin and a 200 per cent turnover of sales to total assets, whereas EasyRest has had a much higher sales turnover (4 or 400 per cent) with a smaller profit margin (5 per cent).

The companies appear to have different pricing policies. HoJo's mark-up on cost of sales is 150 per cent ($300/200$), whereas EasyRest only marks up cost of sales by 36 per cent ($80/220$).

Problem 5.2: Solution

a) Cost of sales = $0.6 \times £28,750,000 = £17,250,000$

$$\text{Average inventory} = \frac{£400,000 + £800,000 + £900,000 + £200,000}{4} = £575,000$$

$$\text{Inventory turnover} = \frac{£17,250,000}{£575,000} = 30$$

$$\text{Average age of inventory} = \frac{365}{30} = 12.17 \text{ days}$$

b) Enwad appears to have less liquid inventory than the average firm in the industry. Enwad's inventory is converted into a sale after 12 days while the average firm in the industry is taking approximately 9 days ($365 \div 40$).

Problem 5.3: Solution

- a. Year ending 20X1 working capital:
 $(\$10,800 + 27,000 + 7,500 + 10,400 + 1,500) - (\$8,400 + 3,600 + 4,500 + 700 + 10,700)$
 $= \$57,200 - \$27,900 = \$29,300$
Year ending 20X2 working capital:
 $(\$14,300 + 26,000 + 7,500 + 12,000 + 1,600) - (\$12,200 + 5,600 + 3,400 + 400 + 9,500)$
 $= \$61,400 - \$31,100 = \$30,300$
- b. Year ending 20X1 current asset ratio: $\$57,200 \div \$27,900 = 2.05$
Year ending 20X2 current asset ratio: $\$61,400 \div \$31,100 = 1.97$
- c. Year ending 20X1 acid test ratio: $(\$57,200 - 10,400 - 1,500) \div \$27,900 = 1.62$
Year ending 20X2 acid test ratio: $(\$61,400 - 12,000 - 1,600) \div \$31,100 = 1.54$
- d. The working capital shows a marginal increase; however, both the current asset ratio and the acid test ratio have decreased marginally. It appears the increase in the working capital has largely been accounted for by an increase in the size of the business (all things being equal, as a business doubles in size, so its working capital needs to double in order to maintain the same level of liquidity). Overall, we can conclude that there has been a marginal decrease in the restaurant's level of liquidity.
- e. Accounts receivable turnover = Credit sales \div average accounts receivable
Credit sales = $\$500,000 \times 0.55 = \$275,000$
Average accounts receivable = $(\$27,000 + \$26,000) \div 2 = \$26,500$
Accounts receivable turnover = $\$275,000 \div \$26,500 = 10.38$
- f. Accounts receivable collection period = $365 \div \text{A.R. turnover}$:
 $365 \div 10.38 = 35.16$ days
- g. Inventory turnover = Cost of sales \div average inventory
Cost of sales = $\$150,000$
Average inventory = $(\$10,400 + \$12,000) \div 2 = \$11,200$
Inventory turnover = $\$150,000 \div \$11,200 = 13.39$
- h. Inventory collection period = $365 \div \text{inventory turnover}$:
 $365 \div 13.39 = 27.25$ days

CHAPTER 6

Internal control

Problem 6.1: Solution

1) *Safeguard assets*

This objective concerns the protection of an organisation's assets from theft, ensuring that fixed assets are maintained so that they can be used efficiently and safely (e.g. appropriate hotel lift maintenance), and ensuring inventory items are appropriately stored to avoid waste and spoilage.

2) *Promote efficient operations*

In a labour-intensive business such as a hotel, ensuring appropriate recruitment and training can go a long way towards promoting efficiency. Adoption of technological advancements, such as providing all banquet staff with earpiece communication devices, can also greatly facilitate efficient operations. A system that monitors the adoption of technological advance-

ments in the sector can ensure a hotel is at the forefront of reaping technology-based operating efficiencies.

3) *Maintain accurate and reliable accounting records*

This objective requires that procedures are established to ensure the production of reliable annual reports to outside parties such as shareholders. Users of external financial reports need assurance that the reports provide a fair reflection of the economic events that have affected an organisation. Managers also need reliable accounting information to assist their operational management decision making and control.

4) *Promote the pursuit of business policies*

It is not worth having internal control procedures if they are not followed. Many organisations conduct internal audits that provide several internal control roles, including an appraisal of the extent to which document procedures are being correctly adhered to. Other ways to ensure business policies are adhered to include appropriately training staff and video recording staff as they conduct their work (video recording is an extensively used internal control device in casinos).

Problem 6.2: Solution

Examples of particular internal control challenges arising in hotels include:

- Hotels have a high volume of cash transactions.
- Hotels experience high employee turnover.
- Many activities within hotels are conducted as relatively small independent units. For instance, if a bar is staffed by two individuals, economies of scale that can facilitate the development of segregated roles consistent with strengthening internal controls are absent.
- In hotels many employees work in close proximity to inventory items that can be easily pilfered.

These characteristics signify that hotel managers need to have a sound appreciation of internal control system design.

Problem 6.3: Solution

HarbourView Hotel Bank Reconciliation as at 31 December 20X1

		\$
Balance as per bank statement	Cr	34,290
Add: outstanding deposits		1,240
		<u>35,530</u>
Less: unpresented cheques		2,170
Balance as per cash at bank account	Dr	<u>\$33,360 *</u>

* Workings

HarbourView's double entry accounting system bank account record

Solutions to first three problems in each chapter

		\$
Cash at bank balance – 31 December 20X1	Dr	33,376
Less: Bank fees		<u>32</u>
		33,344
Add: Bank account interest received		<u>16</u>
Adjusted cash at bank balance – 31 December 20X1	Dr	<u>\$33,360</u>

CHAPTER 7

Cost management issues

Problem 7.1: Solution

The range of cost classifications arise due to the wide diversity of management decision making and control situations that can arise. In the text of the chapter it was noted that the cost classifications that can arise include the following:

- a) outlay vs. opportunity costs,
- b) direct vs. indirect costs,
- c) variable vs. fixed costs,
- d) controllable vs. non-controllable costs,
- e) incremental vs. sunk costs.

An opportunity cost can be a significant issue if management is considering taking an action that will result in a lost opportunity. The issue of direct versus indirect costs is an issue when attempting to determine the profitability of revenue-generating departments, as calculation of each departments' net profit would necessitate the allocation of indirect costs. Many issues arise that necessitate a distinction between fixed and variable costs; one significant issue addressed in this chapter concerns the aggressive pricing strategy of setting prices over the short term at a level designed to cover variable costs. In responsibility accounting it is important that managers are only held accountable for costs that they can control. Finally, sunk costs are irrelevant in decision making; the decision maker need only focus on costs that will be affected by whatever decision is at hand.

Problem 7.2: Solution

- a)
- | | |
|--------------------------------|--------------|
| Variable costs: | £ |
| Food and drink | 7.0 |
| Conference materials | 6.0 |
| Fixed costs ($£360 \div 80$) | <u>4.5</u> |
| | <u>£17.5</u> |
- b)
- | | |
|---------------------------------|------------|
| Variable costs: | £ |
| Food and drink | 7 |
| Conference materials | 6 |
| Fixed costs ($£360 \div 120$) | <u>3</u> |
| | <u>£16</u> |

- c) The cost per attendee declines with more attendees because the fixed cost is spread across more attendees.
- d) If 120 people attend, the cost per attendee is £16.
If profit is to be 20 per cent of revenue, then cost must be 80 per cent of revenue.
As cost = £16 per person when 120 people attend, revenue per person must be $£16 \div 0.8 = £20$.
- e) The lowest price that does not result in the conference adversely affecting this year's profit is the variable cost, i.e., £13 (£7 + £6).

Problem 7.3: Solution

- a) *Determination of variable cost function:*

When 20,000 kgs of laundry was processed (highest level of activity), cost = \$22,000.

When 18,000 kgs of laundry was processed (lowest level of activity), cost = \$20,400.

It therefore costs an extra \$1,600 (\$22,000 – \$20,400) to process an extra 2,000 kgs of laundry (20,000 – 18,000).

Therefore, the variable cost per kg is $\$1,600 \div 2,000 = \0.80 per kg.

Determination of fixed cost function:

Calculation based on July's performance:

HighFlyer's laundry costs for July are \$22,000, and their variable laundry costs are \$16,000 ($\$0.80 \times 20,000$ kgs). Fixed laundry costs must therefore be \$6,000 (\$22,000 – \$16,000).

- b) Total laundry costs if 25,000 kilograms of laundry are processed:

$$(25,000 \times \$0.80) + \$6,000 = \$26,000$$

CHAPTER 8

Cost-volume-profit analysis

Problem 8.1: Solution

The contribution margin format enables us to quickly answer questions such as “What will happen to profit if our hotel's revenue increases by \$100,000?”. If variable costs are 20 per cent of revenue, then the contribution margin ratio is 80 per cent. This signifies that a \$100,000 increase in revenue will result in an \$80,000 increase in profit ($0.8 \times \$100,000$).

The contribution margin format can also be seen as helpful to management's understanding of cost structure as it places revenue alongside those costs that are affected by the level of revenue achieved.

Problem 8.2: Solution

Cost-volume-profit analysis can be helpful if a manager is considering questions such as:

1. “How many units will we need to sell in order to breakeven?”
2. “How much will we need to sell in order to achieve our target profit level?”
3. “What will happen to profit if we manage to increase sales volume by 10 per cent?”

Solutions to first three problems in each chapter

4. “By what volume of sales are we currently surpassing our breakeven point?”
5. “If fixed costs increase by \$20,000, how much more would we have to sell in order to maintain our current level of profit?”

Problem 8.3: Solution

a)

The Hulsey Restaurant		
Income statement for the year ending 31 December 20X1		
(Contribution margin layout)		
	\$	Percentage
Sales revenue	500,000	100.0
Variable costs		
Variable cost of sales	100,000	20.0
Variable operating expenses	16,000	3.2
Contribution margin	384,000	76.8
Fixed costs		
Salaries and wages	144,000	28.8
Marketing	10,000	2.0
Rent	48,000	9.6
Maintenance	5,000	1.0
Other	10,000	2.0
	217,000	43.4
Net profit	\$ 167,000	33.4

- b) Breakeven point = Fixed costs ÷ Contribution per cover =
 $\$217,000 \div (25 - [5 + 0.8]) = \$217,000 \div \$19.2 = 11,302$ meals per annum.
- c) From the income statement prepared using the contribution margin layout, it is evident that the contribution margin is 76.8 per cent.
An increase in sales of 10 per cent represents a \$50,000 sales increase ($\$500,000 \times 0.1$). As the contribution margin ratio is 76.8 per cent a 10 per cent increase in sales will result in a \$38,400 increase in profit ($\$50,000 \times 0.768$).
- d) Profit = Contribution margin – Fixed costs.
 $(\$600,000 \times 0.768) - \$217,000 = 460,800 - 217,000 = \$243,800$.
- e) A 10 per cent increase in revenue would signify that profit would increase by \$50,000 ($\$500,000 \times 0.1$).
Alternately stated, profit would increase by \$2.5 for each cover served. As there are 20,000 covers sold, profit would increase by \$50,000 ($\$2.5 \times 20,000$).

CHAPTER 9

Budgeting and responsibility accounting

Problem 9.1: Solution

Responsibility accounting involves sub-dividing an organisation into units of accountability. It is fundamental to control as it involves holding managers accountable for the performance of their respective units. Budgeting is closely associated with responsibility accounting because budgeting involves allocating resources to an organisation's sub-units. In addition, the budget

highlights benchmarks that are used when appraising a unit manager's performance. As the budgeting system sets targets for all of an organisation's sub-units, it is difficult to conceive of any meaningful budgeting occurring in the absence of a responsibility accounting system.

Problem 9.2: Solution

There is no single "easy" answer to this question.

Issues that might be addressed in a well-reasoned answer include:

- So long as Bromwich provided the requisition to Joe in reasonable time (i.e., sufficient purchasing lead time), it would be inappropriate to hold the head of banqueting and conferences responsible for the part not arriving. Despite this issue, it would appear that the head of banqueting and conferences was responsible for the refund decision and therefore justification could be given for charging at least a portion of the lost revenue to her department. One could also argue that given the importance of the part, Maxine should have followed up with Joe more times.
- The following rationale could be developed for charging all of the lost revenue to the purchasing department:
 1. In the whole organisation, the purchasing manager is the one who is most closely associated with the role of ensuring timely delivery.
 2. Joe could be criticised for not getting another staff member or Maxine to follow up on the order while he was away on holiday.
 3. Joe could have requested that a copy of the consignment be faxed when told that the delivery was underway.
 4. Joe should have informed Maxine earlier of the potential problem with the delivery.
 5. By requiring Joe's department to carry the loss, he may take greater care when ordering one-off special parts in the future.
- It could also be argued to be inappropriate to attach blame to Joe (it was really the supplier's fault), as it appears he may well have made reasonable efforts to ensure timely delivery.
- Joe and Maxine could attempt to recoup some of the loss from the supplier. At the very least, this would inform the supplier of the cost of their mistake.
- This case appears to be a situation highlighting how it can be very inappropriate to use the responsibility accounting system as an apportioning blame system rather than a "determining who should have the opportunity to explain" system.

Problem 9.3: Solution

- 1) The first thing to note is that the responsibility accounting system appears to be perceived as an "apportioning blame" system. This is highly undesirable as it is likely to give rise to ill-feeling that is more damaging than helpful. A properly used responsibility system emphasises information rather than blame. If managers feel they are beaten around the head when unfavourable variances occur, they are likely to view the system as a tool of bureaucracy and start conjuring up ways to undermine the system. When the numbers are used in a manner that emphasises the informational role of the responsibility system, managers are more likely to be open to discussion with colleagues in a quest for gaining improved performance. Scheduling an inter-departmental management meeting following the receipt of monthly performance reports may be one way of focusing on the information aspect of the responsibility accounting system.

Solutions to first three problems in each chapter

- 2) The accountant could agree that in the future “pastry cutters” wages will be charged to Maintenance at the rate of \$9 per hour and that a correction will be made for last month’s entry. The \$4.50 premium could be charged to a “Loss from unused capacity” account which is charged back to the F&B department because it was the F&B director who elected to retain these staff. The Maintenance Manager should be told that it is up to him to get \$9 of work per hour out of the staff placed under his direction. The fact that these are non-preferred personnel could be recognised in a note to the monthly report.
- 3) Theoretically, the accountant could argue that the \$4.50 (or even the whole \$13.50) represents investment in an asset as:
 - a) It is an investment today that will yield a benefit in the future (i.e., retention of preferred kitchen staff),
 - b) It is an investment today that will result in a saving in the future (i.e., no need to expend resources recruiting and training new skilled kitchen staff).

Due to conservatism, accountants would not tend to take this view, however. The distinction is nevertheless important. An “expense” tends to be viewed in a negative light, while an “investment” tends to be viewed in a positive light.

CHAPTER 10

Flexible budgeting and variance analysis

Problem 10.1: Solution

In a static budgeting system, a budget is rigid in the sense that it is not modified once the actual volume of sales is known. While this approach is used extensively, some managers find it helpful to flex budgets up or down in line with the actual volume of sales achieved. Failure to accurately predict the volume of sales is a major factor causing many significant differences between the static budget and actual performance. Under flexible budgeting, however, the effect of a hotel selling more or less than was originally projected is eliminated from differences between the actual and budgeted performance. Elimination of this factor is significant because, by definition, managers in cost centres exert little influence on sales volumes.

A shortcoming of isolating variances between actual performance and the static budget is that much of a variance may be attributable to the fact that it is practically impossible to correctly estimate the volume of sales that will occur in a forthcoming accounting period. Variances occurring as a result of an organisation being busier or quieter than expected are not really reflective of the performance of many managers. If we were to take static budget variances to the extreme, we can see that very favourable variable cost variances can be achieved if we have no one staying at our hotel! To remove the effect of actual volume of sales being different to the budgeted volume of sales, we can produce a flexible budget. In a flexible budget, the static budget figures are restated as if the actual volume of sales achieved had been known at the time the budget was set.

Problem 10.2: Solution

The \$1,200 unfavourable materials price variance signifies that the materials used in the kitchen in the previous month cost \$1,200 more than what budget data indicates they should have cost.

The \$800 favourable materials efficiency variance signifies that in the previous month, kitchen materials were used more efficiently than was budgeted for. For instance a reduction in food scrapped due to poor quality, or a reduction in food thrown away as a result of staleness would be two factors contributing to a favourable materials efficiency variance. Such efficiencies achieved in the previous month have caused the kitchen to beat the budget by \$800 in terms of materials efficiency.

The unfavourable materials flexible budget variance is simply the net of the materials price variance and the materials efficiency variance. The fact that we have a \$400 unfavourable efficiency variance in the previous month signifies that for the volume of sales that we actually achieved in the kitchen, materials used cost \$400 more than they should have done as per budgeted data.

Problem 10.3: Solution

- a) As the lodge has made 15 per cent more room sales than was budgeted for ($[(12,420 - 10,800) \div 10,800 \times 100]$), we can produce a flexible budget by increasing the revenue and variable cost figures stated in the static budget by 15 per cent. A simple way to achieve this is to multiply them by a factor of 1.15.

**The Curbside Motor Lodge
Flexible Budget Performance Report
For the Quarter Ended 30 September 20X1**

	Actual	Budget	Flexible budget	Flexible budget variances
Room nights sold	12,420	10,800	12,420	
	£	£	£	£
Revenue (sales)	1,179,900	1,080,000	1,242,000	62,100 (U)
Variable costs:				
Labour	84,456	75,600	86,940	2,484 (F)
Room amenities	5,216	5,400	6,210	994 (F)
Contribution margin	1,090,228	999,000	1,148,850	58,622 (U)
Fixed costs	241,000	235,000	235,000	6,000 (U)
Operating profit	<u>£ 849,228</u>	<u>£ 764,000</u>	<u>£ 913,850</u>	<u>£ 64,622 (U)</u>

- b) A shortcoming of isolating variances between actual performance and the static budget is that much of a variance may be attributable to the fact that it is practically impossible to correctly estimate the volume of sales that will occur in a forthcoming accounting period. Variances occurring as a result of an organisation being busier or quieter than expected are not really reflective of the performance of many managers. If we were to take static budget variances to the extreme, we can see that very favourable variable cost variances can be achieved if we have no one staying at our hotel! To remove the effect of actual volume of sales being different to the budgeted volume of sales, we can produce a flexible budget. In a flexible budget, the static budget figures are restated as if the actual volume of sales achieved had been known at the time the budget was set.

Solutions to first three problems in each chapter

The flexible budget performance report provides very different management insights to those provided by the static budget variances computed by Curbside's conventional performance report. The extent of these differences is highlighted by the following table.

Curbside: Comparison of static budget and flexible budget variances		
	Static budget variances	Flexible budget variances
Revenue (sales)	(F)	(U)
Variable costs:		
Labour	(U)	(F)
Room amenities	(F)	(F)
Contribution margin	(F)	(U)
Fixed costs	(U)	(U)
Operating profit	(F)	(U)

- The unfavourable flexible budget variance for revenue signifies that rooms must have been sold below the rate budgeted for. This fact was not evident from the static budget variance.
- The favourable flexible budget variance for labour signifies that labour worked efficiently or the labour rate was below the rate budgeted for. This fact was not evident from the static budget variance.
- The size of the unfavourable revenue flexible budget variance is sufficient to have turned the favourable static budget contribution margin variance into an unfavourable flexible budget variance. This impact is also apparent at the operating profit level.

CHAPTER 11

Performance measurement

Problem 11.1: Solution

There appears to be considerable validity in the adage that “what gets measured is what gets managed”. Consideration of students’ approach to studies supports this view. Students tend to put much more effort preparing assignments that carry a mark relative to homework problems that do not carry a mark. It appears people have a great tendency to attach more importance to those things that are measured. This close association between what gets measured and what gets managed highlights the importance of carefully thinking through what should be measured in a hotel’s performance measurement system.

Problem 11.2: Solution

1. Many hotels engage the services of a specialist hotel operating company. Many large hotels operate in this manner, with a management contract struck between the hotel owner and hotel operator. The tension that can arise between the focus of a hotel’s operating company and its owner highlights an additional complexity factor heightening the importance of careful performance measurement system design.
2. The underlying diversity of the activities conducted in a hotel that were described in [Chapter 1](#) (i.e., the service orientation evident in the provision of accommodation, the retail orientation evident in bar sales and the production orientation evident in restaurant

kitchens) requires the development and application of a range of performance measures that move well beyond traditional financial performance measures.

Other challenges arising include the fact that hotel groups have to manage highly geographically dispersed operating units (i.e., hotels) and operate in a sector where very high turnover rates prevail for operating staff.

Problem 11.3: Solution

- (a) **Financial performance measures focus on results not causes.** If a hotel's financial performance measurement system indicates a declining level of sales, we know that all is not well. We would not know, however, what factors account for this bad financial result. We would have no sense of what corrective action should be taken because the sales account represents a highly aggregated performance indicator and there are many factors that could account for a changed level of sales. A broader-based performance measurement system will have a greater capacity to highlight factors that lie behind a declining level of sales.
- (b) **Financial performance measures suffer from a backward-looking orientation.** Financial performance measures tend to focus on performance in a specific period of time that has past. A more valuable performance measurement system is one that can provide pointers towards likely future performance. For instance, increasing levels of customer satisfaction suggests future strong performance due to an increase in return guests and positive word of mouth promotion. Similarly, improved employee morale points towards a likely reduction in future staff turnover and an increase in the care and quality of service provided.
- (c) **Financial performance measures focus on a limited performance dimension.** Financial performance measures are obviously limited to measuring those things that can be measured in money terms. Marketing managers in hotels recognise that customer loyalty is an exceedingly important factor contributing to a hotel's overall performance. Human resource managers recognise that employee morale is very important, particularly as hotel customers come into contact with many hotel employees. Computers and information systems are key integral components contributing to the effective operation of any large hotel (just consider the drastic implications of a one-week failure in a hotel's computerised reservation system). Despite the undoubted importance of factors such as customer loyalty, staff morale and information system support, none of these aspects of a hotel's operation can be monitored using a financial measure.
- (d) **Financial performance measures can promote short-term focused behaviour.** If managers focus too much on the short term, they may be taking steps that can damage a hotel's long-term success. This issue is a particularly apparent problem in the hotel industry because of the frequency with which General Managers (GMs) experience relocation within a chain of hotels. In many chains, it is not unusual for a GM to average around three years at each property. If a hotel chain operates such a management policy and attaches major emphasis on financial performance indicators, there is an incentive for managers to take steps that will result in increasing reported profit for the three years they are with a hotel, with limited concern given to the hotel's longer-term performance. This could mean that the GM cuts back on those financial outlays where no immediate downside is apparent. For example, a GM could reduce property preventative maintenance expenditure, cut back on staff development and training, and reduce expenditure associated with the hotel's local customer loyalty programme that was established by the preceding GM. All of these steps can be expected to result in an immediate cost saving. The negative implications of these

expenditure reductions may not begin to be felt until three years after they have been implemented. This signifies that the GM initiating the expenditure can appear to have performed well, due to the increased reported profit associated with the time he was GM. He could well look even better once he is replaced and the deferred negative implications of the steps he has taken start to be realised following his departure.

CHAPTER 12

Cost information and pricing

Problem 12.1: Solution

Contribution pricing is concerned with covering variable costs to ensure a positive contribution results. It is particularly appropriate with perishable stock such as rooms. If a room is not sold for a particular night and the night in question elapses, that particular room night can never be sold in the future. The contribution pricing philosophy holds that it is better to receive some contribution to profit rather than no contribution, before an unsold room night elapses. As a result, contribution pricing can be seen as a “last minute” mentality that can come into play as the time for a room night elapsing approaches. Viewed in this way, contribution pricing represents an attempt to secure a contribution from stock that is about to be sacrificed (either because of the passage of time or, in the case of food, if the stock is becoming too old to sell).

Yield management is not a “last minute” room pricing philosophy. Yield management involves sales and marketing management developing pricing plans that recognise factors such as whether a reservation pertains to a quiet or busy season, weekday or weekend and also the nature of a customer’s market segment (e.g., group booking vs. a single transient guest). Unlike contribution pricing that focuses on generating a price that covers variable cost, yield management focuses on maximising revenue per available room. Questions addressed in yield management include whether a discounted tour booking should be made for a future period, when most of a hotel’s stock of rooms has already been sold for the period in question.

Problem 12.2: Solution

- a. If a car manufacturer’s sales are slow on a particular day, there is no particular need for the manufacturer to drop the prices of its cars in an effort to sell more on that day. Cars not sold today can simply remain in the car manufacturer’s finished goods inventory in readiness to be sold tomorrow or at some other time in the future. This is because cars represent a non-perishable inventory item.

This is not the situation for a hotel’s room inventory, however. If tonight’s right of occupancy in a particular hotel room is not sold today, the opportunity to sell that occupancy right will be lost forever, as an unsold room night today cannot be placed into inventory for sale at a later date. This heightens the incentive for hotels to consider a strategy of discounting room rates as the time of an unsold block of room nights approaches. As an unsold room night cannot be sold at a future date, it is described as being highly “perishable”.

- b. Pricing strategies should take into account the degree to which a product or service is perishable. To illustrate, let us compare a bottle of wine and a fresh cream cake that are

available for purchase from a café that adjoins a hotel's foyer. Due to differences in the perishability of the two products, a manager would be justified in implementing very different pricing strategies for the two products.

Let us assume that the unit variable cost of making the cakes is \$1.20, and that immediately following production, the cakes are priced at \$4 each. Let us also assume that if a cake is not sold by the end of the day following its production, it will have to be discarded as waste (i.e., the cake is highly perishable). On the day following the cake's production, if the cake is not sold by the time the café closes, its revenue earning potential will be lost forever. Accordingly, a manager might be justified in dropping the retail price of the cakes to \$0.50 one hour before the café is due to close.

The bottle of wine does not suffer from the same perishability as the cream cake. The closing of the café on a particular day does not signify that the future revenue potential of the bottle of wine is lost. Accordingly, the rationale for dropping the price of cream cakes to a point that is below their variable cost does not apply to the bottle of wine.

Problem 12.3: Solution

Total costs:

	<u>£</u>
Bank loan (£250,000 @ 9%)	22,500
Depreciation	40,000
Other fixed costs	65,000
Operating expenses	<u>85,000</u>
Total costs	<u><u>£212,500</u></u>

After tax profit sought by owners = £450,000 × 0.15 = £67,500.

Before tax profit needed to provide after tax profit of £67,500 = £135,000 (tax is 50 per cent).

Total revenue needed to provide before tax profit of £135,000 =

Total costs + desired before tax profit, i.e., £212,500 + £135,000 = £347,500.

Room rate = Total revenue ÷ Room nights sold in a year

Room nights sold in a year = 40 × 0.55 × 365 = 8,030

Room rate = £347,500 ÷ 8,030 = £43.27

CHAPTER 13

Working capital management

Problem 13.1: Solution

A significant factor contributing to the difference between profit and cash flow is the way accountants account for fixed assets. If we pay \$500,000 for a fixed asset, cash will immediately decline at the time we pay for the fixed asset; however, the reported profit in the year the asset is purchased will not be affected by nearly as much. If it is determined that the cost of the asset is to be depreciated over ten years, in the year that the asset is purchased, reported profit will only be reduced by the \$50,000 annual depreciation charge for the asset (assuming

Solutions to first three problems in each chapter

the asset was purchased at the beginning of the year), not the \$500,000 asset cost. This signifies that in the year the asset is purchased, a \$450,000 discrepancy arises between reported profit (affected by a \$50,000 depreciation charge) and actual cash flow (affected by a \$500,000 payment to the fixed asset supplier).

Other factors accounting for a difference between profit and cash flow include:

- We recognise revenue at the time a service is provided, not when cash is received.
- If supplies are paid for on credit, there will be a lag between purchases and payments.
- Employees are paid following the completion of work or a working period.
- In many countries, electricity accounts are settled on a quarterly basis. This signifies at least a three month discrepancy between some of the electricity expense incurred and payment for electricity.
- Insurance and rent are paid in advance of charging the associated expense to the income statement.
- In the case of insurance, payment is made a year in advance of a portion of the expense.
- When a company arranges a loan or increases its share capital there is an immediate large positive impact on cash flow. The only income statement impact concerns the loan's annual interest expense, however.

Problem 13.2: Solution

The following issues should be appraised when considering whether to extend trade credit to a customer:

1. Character: does the customer have a predisposition towards timely payment of accounts?
2. Capacity: does the customer have the capacity to run a successful business?
3. Capital: does the customer have sufficient working and long-term capital to honour the account when it is due for payment?
4. Conditions: are there any particular economic conditions that might affect the potential customer's ability to pay? In addition, there might be particular circumstances such as low occupancy in the off season that might cause a hotel to consider extending credit to less creditworthy customers.
5. Collateral: does the customer have assets that could be liquidated relatively easily in the event of a liquidity crisis that threatened timely reimbursement of the account due.

Problem 13.3: Solution

Schedule of projected cash receipts for CrownJewel in (\$ thousands)

	October	November	December	Total
Room sales	\$ 540	\$ 500	\$ 600	
10% cash sales	\$ 54	\$ 50	\$ 60	\$ 164
50% received in month following sale	300	270	250	820
35% received 2 months following sale	231	210	189	630
5% received 3 months following sale	<u>31.5</u>	<u>33</u>	<u>30</u>	<u>94.5</u>
Total room receipts	\$ <u>616.5</u>	\$ <u>563</u>	\$ <u>529</u>	\$ <u>1,708.5</u>

	October	November	December	Total
Restaurant & bar sales	\$ 70	\$ 60	\$ 80	
30% cash sales	\$ 21	\$ 18	\$ 24	\$ 63
70% received in month following sale	<u>56</u>	<u>49</u>	<u>42</u>	<u>147</u>
Total restaurant & bar receipts	<u>77</u>	<u>67</u>	<u>66</u>	<u>210</u>
Total all receipts	\$ <u>693.5</u>	\$ <u>630</u>	\$ <u>595</u>	\$ <u>1,918.5</u>

CHAPTER 14

Investment decision making

Problem 14.1: Solution

The payback method is intuitively appealing and is relatively simple to understand. Payback can be used as an initial screening mechanism prior to the use of more sophisticated investment appraisal techniques, particularly if a hotel is considering an investment in a high risk country that is subject to high exchange rate volatility. Such volatility can motivate a manager saying “If we don’t get our money back in three years” I don’t want to make this investment.

The payback technique has several shortcomings. Two major shortcomings of the payback approach are:

1. It fails to consider any cash flows occurring after the payback period. The second of the two examples presented in [Box 14.2](#) has the faster payback; however, the first example generates the most lifetime cash inflows. In the first payback example, if the projected operating cash inflows had been \$100,000 in each of the last four years of the investment’s life, the payback would still be four years.
2. It fails to recognise the time value of money, i.e., \$1 today does not have the same value as \$1 in a year’s time. Payback treats cash flows occurring in different time periods as if they have the same value.

Problem 14.2: Solution

- a) The theoretically preferred investment appraisal technique is the Net Present Value approach.
- b) The Net Present Value technique does not suffer from any obvious shortcomings. If a company commits itself to a project with an NPV of \$5m, and the share market is working efficiently, the company’s value should increase by \$5m. This is because today’s value of all the company’s future cash flows has been increased by \$5m.

The ARR’s shortcomings include:

1. It fails to consider the period of the investment. Suppose a hotel is deciding whether to take a 40% ARR investment option with a three year life or an \$8,000 investment option that has a ten year life and an ARR of 38 per cent. The ARR approach would say take the three year project as it has the highest ARR. By investing in the ten year asset that provides a 38

Solutions to first three problems in each chapter

per cent ARR, however, the investor would be able to increase its average return on assets for seven years longer than if it invests in the three year asset that provides a 40 per cent ARR. Accordingly, it appears the ten year 38 per cent ARR investment option is preferable to the three year 40 per cent ARR option.

2. The ARR is based on accounting profits. These figures involve some apportioning of cash flows to different accounting periods (e.g., depreciation). As a result, profits are not “real” in a tangible sense. They represent nothing more than the accountant’s “account” of performance. Cash flows, however, are real, and it is the commercial reality of the timing of money entering and exiting the organisation, and not the accountant’s account, that we need to incorporate in the decision model.

Two major shortcomings of the payback approach are:

1. It fails to consider any cash flows occurring after the payback period. The second of the two examples presented in the book’s [Box 14.2](#) has the faster payback; however, the first example generates the most lifetime cash inflows. In the first payback example, if the projected operating cash inflows had been \$100,000 in each of the last four years of the investment’s life, the payback would still be four years.
2. It fails to recognise the time value of money, i.e., \$1 today does not have the same value as \$1 in a year’s time. Payback treats cash flows occurring in different time periods as if they have the same value.

The IRR approach to investment appraisal has the following shortcomings:

1. In some cases, where a project’s cash flows include future cash outflows, two different discount rates can result in an NPV of zero (i.e., two IRRs for one project).
2. In a single project, accept or reject situation, NPV and IRR will give the same indication (i.e., if $IRR > \text{required rate of return}$, NPV will be > 0). When ranking projects, however, NPV and IRR can give conflicting signals, i.e., the highest NPV project will not necessarily be the highest IRR project. If this situation arises, preference should be given to the NPV indication as it is the theoretically preferred technique.

Problem 14.3: Solution

Present value = \$600 (PV8, 5yr) = $\$600 \times 0.681 = \408.60

CHAPTER 15

Other managerial finance issues

Problem 15.1: Solution

Three reasons accounting for EPS being a deficient financial goal for companies are:

- The issue of EPS timing (early high EPS returns are preferable to late high EPS returns).
- The **failure of EPS to capture cash flows**. A period of high EPS may be a period of low company cash flow.

- **EPS fails to recognize risk.** A company may take on a risky project that increases its EPS; however, the resulting increased risk profile for the company may well cause a decline in its share price.

Problem 15.2: Solution

- a. The **residual dividend theory** holds that a company should use all its available long-term capital investing in positive net present value (NPV) projects, until no further positive NPV project opportunities remain. Following this line of thinking, once a company has invested in all available positive NPV projects, any remaining excess long-term capital (i.e., residual funds) should be distributed as a dividend to its shareholders. Applying this approach will result in considerable volatility in the dividends paid to shareholders. The **information effect dividend theory** holds that a decision to pay dividends to shareholders carries a positive impact on share price. This is because the decision to pay an increased dividend can be seen as a signal that flags a company's intent to pay higher dividends in years to come. Conversely, a decrease in dividends is believed to provide a negative signal, as it suggests that dividends might decrease in years to come. This thinking results in many companies pursuing a policy of only raising dividends levels if they are confident that the increased dividend level can be maintained in years to come.
- b. The findings of empirical research suggest that in practice companies tend to adhere to the information effect theory when setting their dividend policy.
- c. The clientele effect tell us that whatever policy a company is adopting with respect to paying dividends, it should continue to apply this policy. This is because investors who have bought shares in a company must have been attracted to it, based on the dividend payment policy it is pursuing.

Problem 15.3: Solution

Triple bottom line reporting focuses on:

- financial performance reporting,
- social performance reporting, and
- environmental performance reporting.

CHAPTER 16

Revenue management

Problem 16.1: Solution

A low variable cost for a product or service signifies a high price setting discretionary range. A high price setting discretionary range signifies there is considerable scope to modify price in light of information provided by a revenue management system.

Problem 16.2: Solution

Five business characteristics making an industry conducive to the application of revenue management are:

Solutions to first three problems in each chapter

- Fixed capacity
- Ability to segment markets
- Perishable inventory
- Product sold in advance
- Fluctuating demand
- Low variable costs

Problem 16.3: Solution

Three approaches that a hotel can take to gauge its revenue management performance are:

- a) Internal analysis of lost revenue.
- b) Analysing Revpar performance relative to other hotels operating within the same competitive set.
- c) Gauging Revpar performance by purchasing market data concerning hotels with a similar profile.

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