

GOODWILL IMPAIRMENT: THE CASE OF HONG KONG

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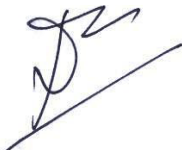
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CERTIFICATION

This thesis is submitted in fulfilment of the degree of PhD at Macquarie Graduate School of Management, Macquarie University. It is wholly my own work, except when general and specific references are acknowledged. I hereby certify that this document has not been submitted for a higher degree to any other university or institution.

Signed

A handwritten signature in dark ink, appearing to be 'Dung Manh Tran', written over a horizontal line.

Dung Manh Tran

September, 2011

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ABSTRACT

This thesis focuses on goodwill impairment implemented and practised in the first three years after Hong Kong's adoption of the International Financial Reporting Standards (IFRS). Three issues – compliance, discount rate and audit quality with respect to goodwill impairment testing – are the focus of analytical and empirical attention.

Understandably, one of the most controversial issues that has been discussed in financial reporting is goodwill. Goodwill impairment is argued to be one of the most difficult issues in practice. This thesis commences with a review of literature relating to goodwill with regard to its conceptualisation, techniques to avoid or alter its recognition, ways to measure and adjust it, and a description of key technical requirements of goodwill impairment in the context of Hong Kong. These issues are demonstrably reviewed in this thesis.

This study focuses on filling the gap in knowledge of compliance, discount rate and audit quality in relation to goodwill impairment. To do so, detailed annual reports of listed firms collected from the Main Board of the Hong Kong Stock Exchange in the period from 2005 to 2007, were drawn upon. Employing analytical procedures and the Capital Asset Pricing Model (CAPM), the study provides persuasive evidence on the issues of compliance, discount rate and audit quality with respect to goodwill impairment.

The thesis concludes that the rates of non-compliance and poor quality of disclosure pertaining to goodwill impairment conducted by Hong Kong firms reduced in the first three years after Hong Kong's adoption of IFRS. However, non-compliance levels and poor disclosure quality were still high. The sample firms had a tendency to

understate discount rates in comparison with independently estimated discount rates in all three years of the investigation. In addition, audit quality among the Big 4 auditors is proved to be heterogeneous rather than homogeneous.

The thesis concludes that a big gap exists between the standard requirements of goodwill impairment and practice. In the context of Hong Kong, this research demonstrates that the efficacy of this standard is low. It is therefore likely that the application of goodwill impairment in practice will continue to cause concern for policy makers and standard setters.

Chapter 1: Introduction

1.1. Rationale of the Study

Goodwill has been a thorny issue in the accounting field for many years (Gynther, 1969). Risky, impalpable, embarrassing, unreliable, undesirable and imponderable are adjectives that have been attributed to goodwill in the literature (More, 1891; Dicksee, 1897; Densham, 1898; Guthrie, 1898). After much controversy, goodwill is now regarded as an asset in consolidated financial statements, which an entity has a right to control.

The issue of defining goodwill has also been the subject of debate. It has been defined variously from a legal perspective, and from an accounting perspective it has been defined by various theories that prove its existence or valuation. It is the excess of the cost of a business combination over the acquirer's interest in the net fair value of the identifiable assets, liabilities and contingent liabilities.¹

Accounting for acquired goodwill is considered to be one of the most difficult aspects of financial reporting. The level of difficulty arises from the nature of goodwill, which is almost impossible to quantify. Over time, a number of methods for treating goodwill have denoted substantial turmoils and changes in jurisdictions. A series of goodwill treatments have yielded dramatic controversies such as improper use of pooling-of-interests accounting, opportunistic behaviour in valuing in-process research and development (R&D), capitalise and keep it unchanged in the balance sheet, capitalise and amortise it with different useful lives (Gibson & Francis, 1975; Carnegie & Gibson, 1987; Carnegie & Gibson, 1992; Carlin *et al.*, 2007b).

¹ Paragraph 51, Hong Kong Financial Reporting Standard No. 3 (HKFRS 3) – *Business Combinations*.

These accounting treatments for goodwill, especially when goodwill was viewed as a depreciating asset and systematically amortised over an arbitrary period of time, were regarded to be improper, not reflecting the nature of goodwill when it was consumed. Prior studies have found that goodwill amortisation is not value relevant (Jennings *et al.*, 2001; Moehrle & Reynolds-Moehrle, 2001). The Financial Accounting Standards Board (FASB) admitted that financial statement users do not consider goodwill amortisation in making investments and credit decisions, and entities ignore goodwill amortisation in evaluating management's performance.² The practice of goodwill amortisation did not reflect the economic change of a firm since reported earnings were burdened with periodic goodwill amortisation expenses (Vichitsarawong, 2007).

In addition, goodwill as a proportion of assets acquired has been growing in recent years because of increasing merger and acquisition (M&A) transactions. Thus a new method of goodwill treatment needed to be designed to overcome the shortcomings of the amortisation method.

In order to achieve international comparability of financial reporting in global financial markets, the International Financial Reporting Standards (IFRS) were officially promulgated and came into effect on 1 January 2005. Thus the goodwill impairment testing regime came into effect.

Adoption of the goodwill impairment method has some advantages. For example, it provides enhanced capacity for financial reporting to show the underlying economic positions of an entity (Wang, 2005), provides users with more meaningful information (IASB 2005), and reflects a decline in goodwill value in a more meaningful manner than an amortisation approach (Donnelly & Keys, 2002). In contrast, implementation of goodwill impairment consists of technical flaws (Haswell & Langfield-Smith,

² Appendix B of SFAS 142 – *Goodwill and Other Intangible Assets*.

2008) and leaves significant room for management to have its own interpretation, judgement and bias (Massoud & Raiborn, 2003).

The replacement of „capitalise and amortise“ by „capitalise and test for impairment“ has produced many difficulties for financial statement preparers, users and auditors because the standard of impairment includes intricate and unclear precepts that are based on subjective assumptions depending on uncertain future parameters such as future cash flows, discount rates and long-term growth rates. So this is very subjective and many different outcomes may exist. It is difficult to determine which is the best outcome since there is no market value for goodwill. According to Hoogendoorn (2006), the impairment testing regime is regarded as a particularly technically challenging element of the IFRS framework and one of the most difficult issues in practice.

Implementation of goodwill impairment standards does not produce big changes on the balance sheet and profit and loss account, but produces heavy burdens in disclosing financial information pertaining to goodwill impairment in the note-form of consolidated financial statements. However, an entity complying with disclosure provisions in relation to goodwill impairment will help financial statement users evaluate the robustness of the goodwill impairment testing process.

The topic of goodwill impairment has also received much attention from accounting researchers. With regard to the transition from „capitalise and amortise“ to „capitalise and test for impairment“, concerns have been expressed about the quality of financial information stemming from the impairment testing framework for goodwill measurement and reporting. There is one common factor that researchers appear to have overlooked, that is, to tacitly assure that reporting firms naturally strongly conform to the technical requirements of accounting standards and that deficiencies of

financial information quality result from factors such as the opportunistic exercise of discretion (Carlin & Finch, 2010c). So the issue of compliance with accounting standards, especially goodwill impairment, emerges as a very important issue.

With regard to the specific technical requirements of goodwill impairment in the accounting standard, discount rate selection represents a central point in deciding the magnitude of impairment losses. The issue of discount rate selection is closely associated with the issue of compliance. If reporting firms select understated or overstated discount rates, these directly affect cash generating units (CGUs), recoverable amount estimates, impairment expenses and reported earnings. So the issue of discount rate variance should be investigated.

Recently, some extant studies have investigated the issues of compliance, discount rate and audit quality with respect to goodwill impairment testing. Compliance levels were evaluated by examining the detailed disclosures pertaining to goodwill impairment conducted by listed firms. Discount rate variance was conducted by comparing the single „whole of firm“ discount rates disclosed by listed firms with independently estimated discount rates calculated by the Capital Asset Pricing Model (CAPM). Audit quality was assessed by the extent of technical compliance with disclosure requirements in relation to goodwill impairment (using the indirect method).

However, a review of the literature also suggests that while some extant studies on compliance, discount rate and audit quality in Australia, Malaysia, Singapore, New Zealand and the United Kingdom using a small sample in the first year after the implementation of IFRS are available, there is not a single study of this topic that has been conducted in developed regions or in areas such as Hong Kong and Taiwan. To fill this gap, this study has chosen to investigate goodwill impairment in Hong Kong.

Another factor contributing to the selection of Hong Kong in this research is its unique position as a developed and special administrative region (SAR) of China and an international financial centre. During its time as a British colony, the accounting framework of Hong Kong was largely influenced by United Kingdom standards and practices. Following the return of sovereignty to China in 1997, Hong Kong began to design its own accounting framework to converge with the prevailing IFRS. As a result, a new accounting framework, the Hong Kong Financial Reporting Standards (HKFRS), came into effect for firms with reporting periods on or after 1 January 2005.

In contrast to the extant research, this study looks into the issues of compliance, discount rate and audit quality with regard to goodwill impairment using a larger sample and longer period of time (three years) after Hong Kong's implementation of IFRS, including the standard of asset impairment.

1.2. Research Objectives and Questions

The study aims to investigate the issues of compliance, discount rate and audit quality by examining goodwill impairment testing in Hong Kong. In so doing it will fill the gap in literature on the early adoption of intricate and highly challenging provisions of the accounting standard of impairment of assets. The research has the following objectives:

- To investigate if there is any improvement in the performance of goodwill impairment with regard to compliance levels and disclosure quality conducted by first-time adopters in Hong Kong.
- To evaluate the variance of performance practice of goodwill impairment with regard to levels of compliance and quality of disclosure undertaken by listed firms in Hong Kong.
- To observe and compare the discount rates employed by Hong Kong-listed firms with independently generated estimates of firm specific risk adjusted discount rates in order to evaluate the difference between them.
- To identify the degree and variance of technical compliance with disclosure requirements pertaining to goodwill impairment testing conducted by Hong Kong-listed firms as a surrogate for audit quality among the Big 4 auditors.

In order to meet these objectives, this research attempts to answer the following four (4) questions:

Question 1: Is there any improvement in the levels of compliance and quality of disclosure in relation to goodwill impairment performed by first-time adopters in the first three years after Hong Kong's adoption of IFRS?

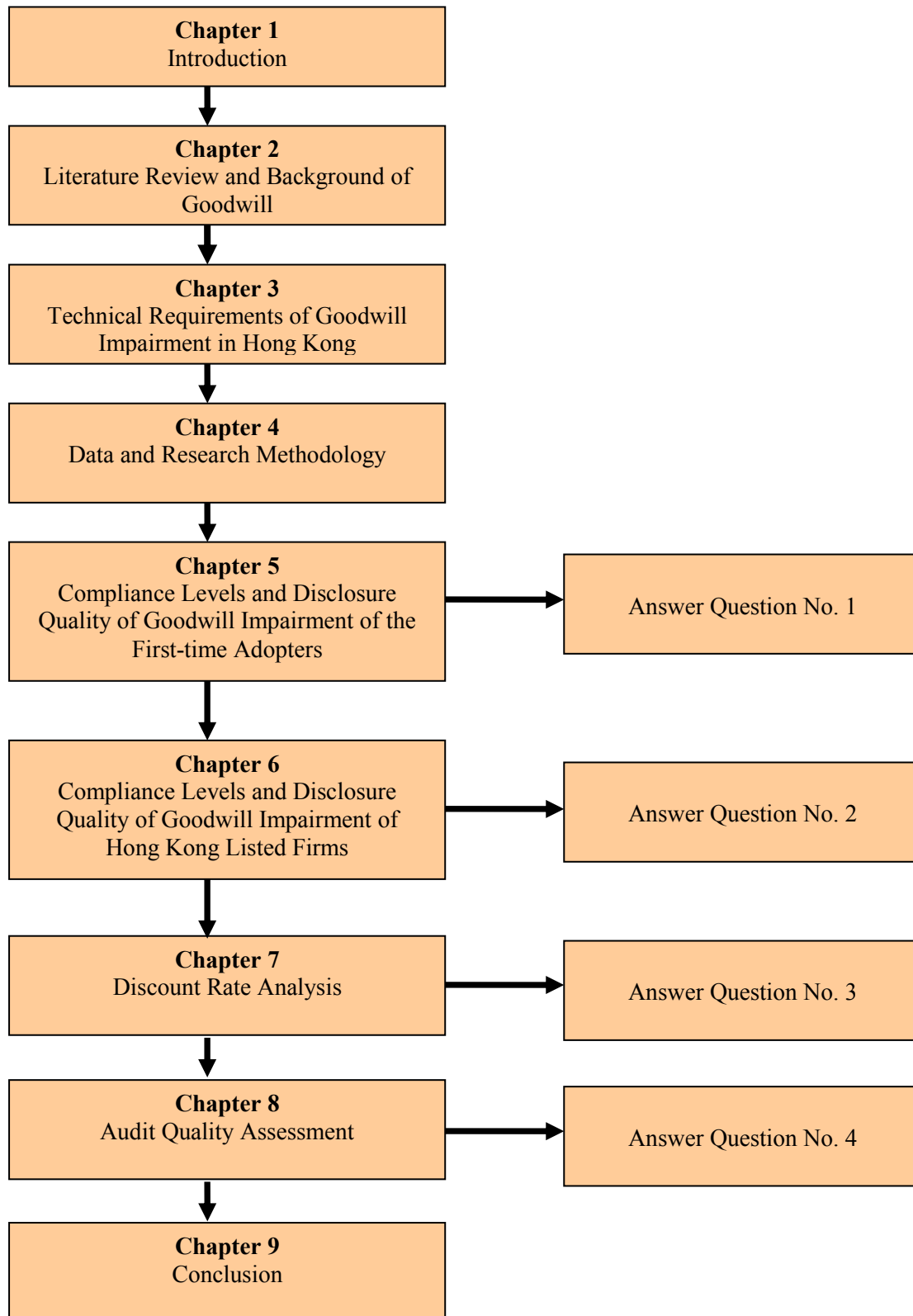
Question 2: What is the variation between performance practice of compliance levels and disclosure quality pertaining to goodwill impairment conducted by listed firms in the three-year period following Hong Kong's implementation of IFRS?

Question 3: What is the variation between observed discount rates chosen by listed firms and independently estimated discount rates calculated by the Capital Asset Pricing Model (CAPM)?

Question 4: What is the difference in audit quality among the Big 4 auditors with regard to technical compliance with disclosure requirements of goodwill impairment under HKAS 36?

The research questions and their relationship to the chapters within the thesis are set out in Figure 1.1, below.

Figure 1.1: Structure of the Thesis



1.3. Structure of the Thesis

This thesis provides insights into compliance levels, discount rates and audit quality with regard to goodwill impairment testing in the context of Hong Kong.

Following an introductory chapter, Chapter 2 reviews previous studies relating to goodwill and the background of goodwill. Different concepts of goodwill are presented from both legal and accounting perspectives. This chapter also sets out some techniques to avoid and alter the magnitude of goodwill recognition, methods to measure purchased goodwill, and some techniques to adjust goodwill after initial recognition.

Chapter 3 provides an overview of technical requirements of goodwill impairment in the context of Hong Kong. Accordingly, the diversity of goodwill arrangements and practices in Hong Kong is presented. This chapter also describes key technical requirements of goodwill impairment that are adopted as the mandatory basis for Hong Kong reporting firms with reporting periods on or after 1 January 2005.

Chapter 4 provides an overview of the data collected and methodologies employed in the research. This includes the collection of data for meeting different objectives of the study, including data of unmatched sample, matched sample, discount rate sample and audit quality sample. Methodologies that are designed for measuring the issues of compliance levels pertaining to goodwill impairment, for estimating discount rates, and for measuring audit quality are also discussed.

Chapter 5 evaluates whether or not there was an improvement in compliance levels and disclosure quality of goodwill impairment testing by examining the detailed disclosures conducted by first-time adopters in the first three years after Hong Kong's

transition to IFRS. This chapter also reviews previous literature relating to goodwill impairment and its compliance levels, and provides the results of empirical investigations into the issue of compliance in relation to goodwill impairment undertaken by first-time adopters in Hong Kong.

Chapter 6 investigates the variation in compliance levels and disclosure quality pertaining to goodwill impairment testing conducted by listed firms in the first three years after Hong Kong's implementation of IFRS. This chapter describes the practice relating to the intricate and challenging issue of goodwill impairment that was faced by Hong Kong-listed firms.

Chapter 7 evaluates the variance in discount rates in the first three years after Hong Kong's adoption of IFRS by comparing the single „whole of firm“ discount rates disclosed by listed firms with independently generated „whole of firm“ discount rates. The technical background of discount rates and related issues are discussed in this chapter. The results of the empirical investigation into discount rate variance are shown to evaluate and compare the tendency of observed discount rates with independently estimated discount rates.

Chapter 8 investigates the issue of audit quality variance by using the indirect method for measuring audit quality. Audit quality as measured in this research is the extent of compliance variations with the disclosure requirements in relation to goodwill impairment. The level of technical compliance with requirements of goodwill impairment disclosure is viewed as a surrogate of audit quality. This chapter also reviews literature relating to audit quality, and provides the empirical results of audit quality variances of the Big 4 auditors.

The final chapter, Chapter 9, synthesises the results of the analytical process with the empirically derived outcomes reported in Chapters 5 to 8. Finally, the limitations of the research and implications for future research are discussed.

Chapter 2: Literature Review and Background of Goodwill

2.1. Introduction

Goodwill is often regarded as the value attributed to such intangible assets (among others) as reputation, a well-trained workforce, good contacts within the industry, favourable business location, and any other unique features of a company for which another company would pay in excess of the value of net assets shown in the financial statements (Baber, 2001).

Much has been written on goodwill by eminent authorities, and so far as these writers have been able to determine, the subject of goodwill has not been adequately dealt with from an accounting perspective (Yang, 1927). Thus, goodwill has been the issue that is very controversial and seriously debated by academics and practitioners all over the world (Seetharaman *et al.*, 2004). It is commercially valuable and commonly considered as an intangible asset in the consolidated financial statements, and was defined by Hughes (1982) as the differential ability of a business, in comparison with others or an assumed average firm, to make a profit.

As early as 1929, Canning noted that the most striking feature of much of the writing on goodwill is the number and variety of disagreement on the nature of goodwill even though accountants, researchers, engineers and the courts have all tried to define it. Confusion and disagreements still exist (Falk & Gordon, 1977). Furthermore, goodwill is considered very hard to measure and even more difficult to account for (Sundararajan, 1995).

There has been little variation in the perspective taken by researchers approaching the issue of goodwill in the commercial and accounting fields, with goodwill having been described as the black sheep on the balance sheet (Carlin *et al.*, 2007b) and as a will-o-the-wisp (Lee, 1971). Goodwill acquired in a business context is an asset with more prominence and material in the total assets because of a significant increase in the number of business combinations, especially in the context of global market development. So the issue of goodwill and a series of questions relating to its nature, its treatments and its disclosures in the consolidated financial statements are of interest to academics and practitioners.

Hughes (1982) traced the first known reference to the term „goodwill“ in a case that dealt with the transmission of an interest in a quarrying operation from one man to another. Meanwhile, Leake (1914) denoted the confusion surrounding goodwill as “never defined satisfactorily”.

Goodwill, the most intangible of intangibles (Davis, 1992; Sundararajan, 1995) which can be immeasurable (Seetharaman *et al.*, 2006), has long been considered an important business asset in the literature. Recognising, measuring and disclosing goodwill in the consolidated financial statements has also been a controversial issue. Matters have been more complicated and confused by differences which have arisen between the legal definition of goodwill, mainly based on detailed cases, and accounting and economic models of goodwill which are seen to be broader in dimension.

The acceptance of goodwill as an intangible is still disputable in many studies for different reasons. Over time and across jurisdictions, a variety of practice in either avoiding goodwill recognition by using the pooling-of-interests accounting method or altering the magnitude of goodwill by using in-process research and development, has

existed. A diversity of practice, to some extent, influences the reliability of financial information in the financial statements.

This chapter sets out to cover some of the issues mentioned above. Specifically, section 2.2 reviews goodwill conceptualisation from a legal perspective. Section 2.3 focuses on goodwill conceptualisation from an accounting perspective. Section 2.4 summarises accounting goodwill conceptualisation. Section 2.5 provides evidence to show that goodwill is an asset. Section 2.6 presents techniques that avoid and alter the recognition of goodwill. Section 2.7 offers a way to measure purchased goodwill. Section 2.8 reveals some techniques for adjusting goodwill after initial recognition. Section 2.9 gives a brief conclusion.

2.2. Historical Review of Legal Goodwill Conceptualisation

A more detailed consideration of the nature of goodwill was identified by the courts (Dicksee & Tillyard, 1976). From the early 17th century onwards, a series of cases had been fairly settled in which courts attempted to define the term „goodwill“ and the circumstances in which it might arise. Early cases adopted a very simple and narrow concept of goodwill. One case was reported in which a consideration was paid by a buyer of the wares of an old shop for the seller’s agreement not to keep the said shop in that vicinity.³

Implications for the evolving concepts of goodwill were evident in legal definitions of goodwill in Britain in the early nineteenth century (Hughes, 1982). While dealing with the business of a wagon transport in 1810, Lord Eldon stated: “the goodwill which has been the subject of sale is nothing more than the probability that old

³ Broad v. Jollyfe, Cro. Jac. 596.

customers will resort to the old place”.⁴ This definition, which pertains to beneficial location, is insufficient to comprise every aspect of what is now understood as goodwill. It can be criticised for being narrow, but is accurate enough to describe the goodwill of the class of business.

In dealing with the sale of the goodwill of a stone merchant’s entity,⁵ Sir George Jessel stated that:

Attracting customers to the business is a matter connected with the carrying of it on. It is the formation of that connection which has made the value of the thing that the late firm sold, and they really had nothing else to sell in the shape of goodwill.

As can be seen from these earlier concepts, there was a strong emphasis on what may be termed „customer patronage“ as an essential element of goodwill, whereby goodwill was nothing more than the habit of old customers continuing to buy goods or services at a particular business organisation. By this definition, goodwill only exists by virtue of distinguishing characteristics of a particular business, which is able to attract old customers, thus increasing the value of the business.

A much broader definition of goodwill was given in the case of *Churton v. Douglas* in 1859⁶. In that case, Vice-Chancellor Wood assumed goodwill to be:

... every advantage that might have been acquired by a firm in carrying on its business, whether connected with the premises or the name of the firm or with any other matter carrying with it the benefit of the business.

⁴ *Cruttwell v. Lye*, 17. 335 (1810).

⁵ In the case of *Ginesi v. Cooper & Co.* (1880, 14 Ch.D. 599).

⁶ *Johns*, 174.

Warrington, J. in *Trego v. Hunt (supra)* stated that “goodwill of a business is the advantage, whatever it may be, which a person gets by continuing to carry on, and being entitled to represent to the outside world that he is carrying on, a business which has been carried on for some time previously” (Dicksee & Tillyard, 1976, p. 35).

In the case of the *Commissioner of Inland Revenue v. Muller, Lim*⁷, Lord Macnaghten remarked:

What is goodwill? It is a thing very easy to describe, very difficult to define. It is the benefit and advantage of the good name, reputation, and connection of a business. It is the attractive force which brings in custom. It is the one thing which distinguishes an old established business from a new business at its first start. The goodwill of a business must emanate from a particular centre or source. However widely extended or diffused its influence may be, goodwill is worth nothing unless it has power of attraction sufficient to bring customers home to the source from which it emanates. Goodwill is composed of a variety of elements. It differs in its composition in different trades and in different businesses in the same trade. One element may preponderate, and another element there.

In the goodwill definitions described above, the concept of goodwill is very broad, and not only focused on the idea of goodwill as a patronage of the clients. In *Commissioner of Taxation v. Murray*⁸ it was stated that:

The attraction of custom still remains central to the legal concept of goodwill. Courts will protect this source or element of goodwill irrespective of the profitability or value of the business. Thus a person who has sold the goodwill

⁷ (1901, AC. 217).

⁸ (1998) HCA 42.

*of a business will be restrained by injunction from soliciting business from a customer of the old firm even though the value of that firm is no greater than the value of its identifiable assets. Such considerations seem to make it impossible to achieve a synthesis of the legal and accounting and business conceptions of goodwill.*⁹

Nonetheless, this method is generally unaccepted and considered ambiguous in at least some quarters. Kirby J.¹⁰ had a different idea of goodwill and declared that:

... goodwill means very positive advantage which is acquired by an owner in carrying on a business. It is wrong, in my opinion, to take a narrow view of the nature of goodwill in the present context, not least because of the changing ways in which small businesses, including trans-national businesses, are now performed under a multitude of franchise and other licensing agreements, treaties and other legal rights. It is also wrong because it introduces a serious gulf between the notions of goodwill which are held by economists and accountants (on the one hand) and those which lawyers insist upon (on the other).

In *Inland Revenue v. Angus* (1889, 23 Q.B.D. 590), Lord Esher defined the broad concept of goodwill when he stated that the goodwill of a business is “property within the meaning of the section (there in question). It is always treated as property between purchase and seller, and it is a legal property”. The House of Lords held that goodwill was “property locally situate out of the United Kingdom”. In considering goodwill as property, the law assumes that goodwill is inseparable from a business (Dicksee & Tillyard, 1976). According to Seetharaman *et al.* (2006), goodwill cannot be separated

⁹ (1998) HCA 42 at 20, per Gaudon, McHugh, Gummow and Hayne JJ.

¹⁰ (1998) HCA 42.

from a business, so it is impossible for a company to acquire goodwill without acquiring the whole company or a substantial portion of it.

In the case of the *Commissioners of Inland Revenue v. Muller, Lim. (supra)*, Lord Lindley advocated goodwill as an asset. He stated, “in this wide sense goodwill is inseparable from the business to which it adds value, and, in my opinion, exists where the business is carrying on”.

Goodwill, a problematic issue in the accounting field for many years (Gynther, 1969), has also been reviewed from a legal perspective. These legal definitions of goodwill include the continued patronage of clients, the probability that old customers resort to an entity, the benefit and advantage of a business, and property, which is inseparable from the business. The conceptualisation of goodwill from an accounting perspective is reviewed and discussed in the next section.

2.3. Historical Review of Accounting Goodwill Conceptualisation

Goodwill has emerged as one of the most controversial issues in financial reporting (Gynther, 1969). Its nature and source has been long debated and rarely agreed on by accounting theorists. Over time and across a range of jurisdictions, accounting theorists have created a tangled collection of mostly conflicting explanations relating to recognising, measuring and reporting goodwill.

In addressing the nature of goodwill from an accounting perspective, the various concepts of goodwill will be discussed to show the contradictions among different theories of goodwill. By analysing these different concepts of goodwill, the issue of how it arises and how it is valued will be demonstrated.

1. Customer Patronage

The legal definitions of the nature of goodwill have been based on the notion that goodwill implies customer patronage, or the reasons that attract customers to continue having business transactions with a particular business.

Goodwill was the friendly attitude and patronage of customers (Yang, 1927). In the case of *Crutwell v. Lye*¹¹, Lord Elton supposed that goodwill, the subject of sale, was nothing more than that old clients continued to deal with an old business. The same concept was given in *England v. Downs*¹², where goodwill was defined as “the chance or probability that custom would be had at a certain place of business in consequence of the way in which the business had previously been carried on”.

In the accounting literature, many early goodwill researchers appeared to align themselves with the early legal definition of customer patronage (Carnegie, 1987). For instance, Bourne (1888, p. 604) confirmed goodwill as “... the benefit and advantage accruing to an existing business from the regard that its customers entertain towards it and from the likelihood of their continued patronage”. More (1891, p. 282), defined goodwill as “... just another name to designate the patronage of the public”. Similarly, goodwill was defined as “the benefit arising from connection and reputation, the probability of the old customers going to the new firm which has acquired the business” (Dicksee, 1897, p. 40).

During the nineteenth century, the concept of customer patronage was attributed to the state and business conduct. Prior to the rise of the joint stock company, goodwill related to the particular skills, friendliness and personality of the owner of a business.

¹¹ *Crutwell v. Lye* (1810, 17 ves. 335).

¹² *England v. Downs* (1843, 6 beav. 269).

Much of what was written about goodwill involved goodwill on the death of a proprietor of a business or their withdrawal from it (Carnegie, 1987, pp 13-14).

The rise of the corporate form of business brought segregation of ownership from the idea of business management. Manufacturing processes, new financing arrangements and connections, organised and well educated labour, technology advancements, well-developed markets were introduced to modern industrial nations (Carnegie, 1987). As a result, goodwill came to be regarded as advantageous factors and conditions which an established business possessed (Bently, 1911; Yang, 1927; Hughes, 1982).

2. Annuity Theory

According to the Theory of Annuity, goodwill can be defined as the value of an annuity stream of future profits that accrues to a new owner upon acquiring another business. This theory was popular in the late 19th century and was set up by practitioners and researchers such as More (1891). Hatfield (1909) also discussed this method of defining goodwill which became the foundation for the Future Excess Profit Theory and The Residuum Concept of goodwill.

According to Nelson (1953) and proponents such as Leake (1914) and Paton (1941), Annuity Theory was created for describing goodwill in a going concern business where the buyer was “investing in a series of excess earnings, an analogy to an investment in an annuity” (Nelson, 1953, p. 491).

3. Future Excess Profit

The concept of excess profit evolved in the last decade of the nineteenth century. Francis More seems to have given the first lecture on goodwill valuation. Earnings of

a business should be the real basis of valuation, with tangible assets merely one of the means whereby profits are earned (More, 1891). More also believed that if the business was not making a return in excess of an ordinary or normal return, no price was to be paid for goodwill.

Dicksee discussed excess profit again in 1897. Dicksee (1897) believed that goodwill value was calculated in a formula which took average net profits over the past three or four years, and then deducted interests on capital and cost of skilled management, with the residual (if any) being multiplied by some factor to obtain the value of goodwill.

Although More and Dicksee argued goodwill as customer patronage, or the reasons why customers continue to have economic transactions with a particular business, they believed goodwill value was attributable to the ability to obtain excess profits. The concept of excess profits has been interpreted widely in the twentieth century and consists of advantageous factors and conditions which contribute to business excess profits (Carnegie, 1987).

For example, Catlett & Olson (1968, pp. 17-18) provided 15 possible advantageous factors and conditions which could give rise to excess earning power:

1. Superior management team
2. Outstanding sales manager or organisation
3. Weakness in the management of a competitor
4. Effective advertising
5. Secret manufacturing process
6. Good labour relations
7. Outstanding credit rating resulting from an established reputation for integrity

8. Top-flight training program for employees
9. High standing in a community through contributions
10. Unfavourable development in the operations of a competitor
11. Favourable association with another company
12. Strategic location
13. Discovery of talents or resources
14. Favourable tax conditions
15. Favourable government regulation.

The relationship between future excess profits and goodwill was discussed by Walker (1953, p. 213):

By definition, goodwill has no accounting significance except in terms of an earning capacity which is estimated to be above normal. A price is paid for goodwill – a price above the value placed on other assets – because profits in excess of a normal return on the investment are anticipated ... it may be said that the payment for the expected stream of income in excess of a normal return is a payment for goodwill, and that the payment for the expected stream of income equal to a normal return is a payment for the other assets.

Goodwill may therefore be considered as the present value of profits earned in excess of those required to provide ordinary rates of return on the identifiable assets of the business (Leake, 1914; Gynther, 1969). Many researchers have supported this definition. For example, Ma & Hopkins (1988, p. 76) stated that goodwill is “the capitalised value (i.e. the present value) of future streams of superior earnings of the business to be acquired”. Gynther (1969, p. 248) stated that goodwill is “the net present value of those assets that it has not been possible to list and value separately”. Bryer (1995, p. 287) defined goodwill as “the present values of expected surplus

profits”. Yang (1927, p. 88) defined goodwill as “... the present worth or capitalized value of the estimated future earnings of an established enterprise in excess of the normal results that it might be reasonably assumed would be realized by a similar undertaking established new”.

4. Master Valuation Account Theory

This method was first advanced by Canning (1929, p. 42) when he described goodwill as the “master valuation account”, or the “valuation account par excellence”. According to this theory, goodwill may be approximated as the difference between the purchase consideration given for a business (which presents the value of the business as a whole) and the net value of identifiable assets, including tangible and intangible assets acquired (Canning, 1929; Falk & Gordon, 1977). The difference is argued to be the result of some favourable characteristics associated with a business (Falk & Gordon, 1977).

The master valuation account concept results from combining the going value residuum concept and the „unrecorded assets“ concept¹³ due to the inability to allocate the value of goodwill to the going value and unrecorded assets value. The underlying idea of this concept is that goodwill is a common value which is unable to be allocated to specific types of assets in a proper manner (Carnegie, 1987).

Canning (1929, p. 39) stated that “elementary components of goodwill are interesting to speculate about but only the mass resultant, in any given enterprise, is capable of statistical generalization”. In defining this concept of goodwill, Bedford & Burton (1977, p. 4) declared that “... it is clearly an accounting concept created because of

¹³ Beresford & Moseley (1983) refer to the „unrecorded assets“ concept as Imperfect Measurement Theory.

the measurement difficulty and is recorded as if it had no single distinctive constitutive characteristic”.

5. Certain Intangible Resources

This concept was discussed in Sander *et al* (1938, p. 67) where goodwill was “sometimes defined ... as the excess of the total value of the assets of a going concern over that part of the value which can be allocated to specific assets”. The goodwill that represents certain intangible resources, irrespective of whether future excess profits are expected is the difference between the total value of a business and the value attributed to its various identifiable assets, including those intangibles which are capable of being individually recorded and identified by accountants.

According to this method, goodwill exists because of the presence of certain intangible advantageous conditions and factors, frequently called „unidentifiable intangibles“ which contribute to the overall profitability and value of a business (Carnegie, 1987). The advantageous factors and contributions were identified by Catlett & Olson (Catlett & Olson, 1968).

Many researchers have supported the identification of goodwill as an asset. Paton & Paton (1971) classified such intangibles into four areas, namely, financial, commercial, industrial and political goodwill. However, the list of various intangibles representing goodwill is exhaustive (Carnegie, 1987). Other definitions of goodwill included more advantageous intangibles including personality, locality, reputations and skills, trade marks, trade names and patents (More, 1891; Dicksee, 1897; Leake, 1914; Dicksee & Tillyard, 1976).

The certain intangible resource definition was the most relevant definition of goodwill and the Future Excess Profits Theory was a valuation method rather than an outright definition (Gynther, 1969). According to the Future Excess Profits Theory, there is no goodwill when earnings are normal or less than normal. However, Gynther supposed that the intangible assets would still exist and contribute to overall profits or business value.

Lee (1971) assumed that the existence of goodwill depended on certain conditions which contributed to overall profit whereas goodwill value depended on the level of the profits. Carnegie (1987, p. 21) stated that “the certain intangible resources concept has been described separately from other concepts of goodwill, it might be regarded as another version of the residuum concept. This is because the portion of the total value of a business which is not represented by identifiable net assets, is assumed to be the goodwill of that business.”

6. Market Value Theory

Market Value Theory assumes that goodwill is a function of equity. This is quite different from other theories of goodwill where goodwill is a function of assets or profit. This theory suggests that goodwill may be approximated as the difference between the market value of equity and the carrying amounts (book values) of equity at a point in time. Macneal (1939, p. 232) stated that:

... the total value of a business as a whole is best expressed by the price of its equities in the market place. The difference between this value and the value of the net assets (equity) with goodwill constitutes the present market value of theoretical goodwill.

Bloom (2007) assumed that goodwill could be measured easily and objectively by reference to Market Capitalisation, and included a Market Capitalisation Statement within financial statements for providing an objective, integrated and meaningful view of goodwill. In the Market Capitalisation Statement model, goodwill that is both acquired in a business combination and internally generated is the difference between a market capitalisation of the business (market value) and the values that include the carrying amounts of equity less the cost of purchased goodwill.

Defining goodwill according to Market Value would result in significant changes relating to goodwill presentation in the consolidated financial statements. However, it was the most logically defensible method for rationalising and ascertaining goodwill value (Spacek, 1964; Spacek, 1973).

7. Momentum Theory

Nelson (1953) claimed that goodwill may represent some initial momentum (or push) which accrues to the acquiring entity at the time of acquisition. The fact of acquisition transactions may result in greater business momentum as a result of various favourable characteristics accruing to the combined business (or newly acquired entity). The value of momentum can be thought of as goodwill. However, this „push“ is not everlasting, but rather a momentum or running start to which the buyer should keep the business in existence.

Under this theory, it is unnecessary for the entity to have made a profit or even to have demonstrated the likelihood that it will obtain super profits in the future. It is only necessary that the entity is capable of offering prospective buyers a marketing, promotional or other „push“, which makes it more attractive than the prospect of developing a similar entity from scratch (Bloom, 2007).

Leake (1930) defined goodwill as “any or all such property as business connection associated with names, persons and places of business, trade marks, patents and design, copyright, and the right to exercise monopolies” (Leake, 1930, p. 18).

Nelson (Nelson, 1953, p. 491) assumed that many items exist in goodwill. He stated that:

... various items which are commonly thought to constitute 'goodwill': goodwill, processes, patents, copyrights, licenses, franchises, superior earning power and going value.

In Nelson’s opinion, the most important item of goodwill is “favourable attitudes toward an enterprise”, and goodwill consists of “the favourable attitudes of customers, employees, credit grantors, investors, suppliers, governmental regulators, politicians and the general public” (Nelson, 1953, p. 491). Nelson also proposed that goodwill represents reputation and customer habit. The buyer often pays large sums of money for goodwill because:

... the reason is that he wants this starting 'push' in his new enterprise, rather than to start fresh in a similar business and devote much effort and money over a long period to develop such goodwill, especially since his profits are likely to be meager until goodwill is developed. (Nelson, 1953, p. 491)

In distinguishing between Momentum Theory and Annuity Theory, Nelson (1953) assumed that Momentum Theory is a better hypothesis to define purchased goodwill because businessmen are buyers of a marketing or promotional „push“, not buyers of annuities. He admits that buyers purchase promotional push and that the „push“ dissipates like momentum.

8. Imperfect Competition Theory

Imperfect Competition Theory was coined by Sands (1963). In this theory goodwill represents the value that is generated as a result of an entity facing less than perfect market competition. This less than perfect competition yields various favourable characteristics that accrue to the entity and allow the entity earning profits at above normal economic levels. The total value of these favourable market imperfections, related to government guidelines, is the business's goodwill (Falk & Gordon, 1977).

Sands believed that intangibles, in general, are "conditions of imperfect competition impinging on the operation of the business" (Sands, 1963, p. 32). He argued that "it is these conditions which give rise to earnings in an entity. For without conditions of imperfect competition, profit, at least in the economic sense, could not exist" (Sands, 1963, p. 32).

In terms of goodwill, Sands declared:

It is not possible to know and enumerate every individual condition of imperfect competition affecting a business. In current accounting practice only a very few are segregated; those legally protected by patents, copyrights, trade marks, franchises, and the like; those arising from large-scale expenditures for such things as advertising and research, whose cost is described as organization, financing and development expenses. All those that are not separately distinguished, favourable and unfavourable, are lumped under the single caption goodwill (Sands, 1963, p. 21).

Sands seems to have been the first person who focused his discussion of goodwill with regard to this aspect. He argued that the conditions necessary for imperfect

competition are reflected in various favourable characteristics that accrue to a firm. His imperfect competition concept provides the foundation necessary for examining the nature of goodwill. However, his arguments do not recognise goodwill as an asset and he cannot breakdown the imperfect competition concept to different individual markets (e.g., financial, capital goods, labour and product) thereby preventing a complete analysis of the nature of goodwill (Falk & Gordon, 1977).

9. The Residuum Concept

Some researchers such as Carsberg (1966) and Seetharaman *et al* (2004) describe the two different methods of goodwill valuation created by Hatfield (1909). The first approach that Hatfield used was to capitalise the net profits (before deducting an allowance for ordinary interest on tangible capital employed) to obtain the value of the whole going concern business, and then subtract the value of the net tangible assets. The second approach was to capitalise surplus profit after interests.

Given the same rate of interest throughout the mathematical calculations, the same results are achieved under both methods (Carsberg, 1966). The first method indicates that a stream of anticipated income is valued and goodwill is represented as a balancing item between this value and the value of the tangible assets. The second approach implies the ability to obtain a significant valuation of each asset (including goodwill) and then the aggregate reflects the value of the whole business (Carsberg, 1966; Carnegie, 1987; Sulaiman, 1994; Seetharaman *et al.*, 2004).

A possible view of goodwill is when the intangible assets are the residuum, which is the amount of shortfall between the value attributed to the whole business (Paton, 1922). In this case, goodwill is the residue that comprises all those intangible advantageous factors and conditions an entity possesses. However, Paton ignores the

prospects that a number of intangible factors and conditions may be able to be specifically identified and separately recognised as assets such as patents, copyrights, licenses and trademarks (Carnegie, 1987).

A systems-theoretic approach was applied to financial accounting by Miller (1973). Miller (1973, p. 285) emphasised that “... the notion of goodwill as a residuum is necessary” because the essence of this approach is that all individual valuations of a business’s assets are arbitrary and cannot be aggregated to have a reliable estimation of the total business value.

Bonbright (1937, p. 78) stated that:

... the goodwill account is really a kind of valuation account representing, not the value of a particular asset, but rather the difference between the values that accounting practice arbitrary assigns to the separately stated assets and the value that the management desires to assign to the enterprise as a whole.

In keeping with the concept of goodwill as residuum, Carsberg (1966, p. 11) admitted that “... it is not possible to demonstrate a uniquely correct value for each asset (including goodwill), considered separately, so that the aggregate reflects the value of the whole business”. Sundararajan (1995, p. 2) agreed with this method and stated that “goodwill is defined as the difference between purchase price and the fair value of an acquired entity’s assets. It means that goodwill is a leftover amount that cannot identify as any other tangible or intangible asset. This is similar to the nineteenth century definition.” According to Steward (1980), the residuum concept is more concerned with the measurement of goodwill rather than defining the nature of goodwill.

10. The New York Method

In the early twentieth century courts in the United States were frequently asked to determine the goodwill value of businesses in cases arising out of tax legislation. Principles were promulgated to assure that judgements were consistent. This method became known as the New York Method (Carsberg, 1966).

The New York Method may not be new to the issue of goodwill conceptualisation, but it is noteworthy as an effort to reach an agreed standard procedure on goodwill valuation. According to this approach, goodwill depends much on the profits of a business. There was no goodwill value if the earnings did not exceed 6% p.a. on the net assets. A net earnings amount would be ascertained by averaging past profits (after deducting reasonable management remuneration) for a number of years, and net tangible asset values would be carrying amounts.

In cases relating to estate and inheritance taxes, any surplus was multiplied by a factor to give the value of goodwill. The size of the multiplier ranged from one to five, or as much as 10 in special cases. However, the rationale of the factors seems to have been understated. Carsberg (1966) also denoted that at about the same time in special franchise tax cases, goodwill was measured by capitalising the surplus profit at an interest rate of about 7%.

11. Imperfect Measurement Theory

Gynther (1969) was a chief proponent of this theory, followed by Miller (1973). According to Imperfect Measurement Theory, goodwill exists because all intangible assets cannot be identified and measured correctly. Gynther argued that the sum of the value of intangible assets such as special skills and knowledge, high managerial

ability, monopolistic situation, social and business connection, good name and reputation, favourable situation and established clientele is the value of goodwill.

Gynther (1969, p. 248) stated that “goodwill would be the net present value of those assets that it has not been possible to list and value separately”. Gynther also said:

If we were omniscient it would be possible to name all of the intangible assets (as well as the tangible assets) and to calculate for its net present value. This would mean that we would also have values for all assets such as ‘special skill and knowledge,’ ‘high managerial ability, etc., - i.e., if they existed. There would be no Goodwill item as such. (Gynther, 1969, p. 248)

Imperfect Measurement Theory was discussed by Beresford & Moseley (1983), and goodwill was defined as unrecorded assets. The impossibility of measuring certain assets, whether tangible or intangible, results in the undervaluation of some items that are listed as assets (Canning, 1929).

Owing to weaknesses in the inaccurate recognition and measurement of goodwill, Gynther (1969) hoped that this approach would be replaced in the near future because of rapid advances in probability theory, sensitivity analysis, subjective probability and simulation technique. However, the irrelevance of Imperfect Measurement Theory has not been realised.

12. Premium for Control

According to this method, goodwill can be seen as a cost of control or a premium of an entity (Wolff, 1967; Carslaw, 1982), in which the premium for control is defined as “the difference between the total offering price quoted on the deal announcement

data and the market value of the acquired firm (purchased portion) prior to the announcement date ...” (Choi & Changwoo, 1991, p. 223).

The primary benefit derived from paying a premium for control is the right to direct an entity’s policies into the foreseeable future (Wise, 1986). A premium for control may be paid for reasons unrelated to earning power (Wolff, 1967) and for other reasons including the opportunity to remove a troublesome rival or the chance to acquire a strategic business operation (Carnegie, 1987).

Choi & Changwoo (1991) stated that premiums paid tend to be associated more with goodwill for acquirers and an entity could well have been encouraged by the profit effect to pay too high a price. A premium for control may arise in situations where goodwill is evident (Barlev, 1973).

Archer (1976) described a different view of the premium for control concept. He stated that a premium “... arises when an enthusiastic buyer faces a shrewd or reluctant seller” (Archer, 1976, p. 43). In these situations, a premium may be paid over the perceived economic value of an entity, and Archer believed goodwill may have been involved.

13. ‘Bad Buy’ or Loss on Acquisition

„Bad buy” or loss on acquisition is another concept of the nature of goodwill. Leo & Hoggett (1984, p.348) stated that a bad buy occurs when a buyer makes an incorrect assessment of the value of the net asset acquired, resulting in an overpayment to the seller. A „bad buy” exists when the acquisition cost is considered to be higher than the subsidiary’s value (Schwencke, 2002, p.227).

There are various reasons why the bad buy arises, but it is often the result of inadequate investigation of the acquisition on the part of the buyer (purchaser). This concept of goodwill arises merely by implication from the accounting practice employed by many entities of directly eliminating the positive residual value arising at the time of acquisition (Carnegie, 1987). This concept is entirely inapplicable in the case of a „good buy“ from a purchaser.

The basis of this concept is that any excess paid over the value attributable to the identifiable net assets acquired can be seen as an overpayment, and it may be suggested that there are no tangible advantageous factors and conditions not specifically reported in the financial statements at the time of acquisition. The „unallocated acquisition cost“ equates to the „bad buy“ concept (Carnegie, 1987).

2.4. A Brief Description of Accounting Goodwill Conceptualisation

The theories of goodwill set out above reveal the diversity of conceptual confusion over goodwill and give rise to the following issues.

First, the majority of goodwill theories describe the circumstances in which goodwill might come into existence and how it might be measured, rather than defining what it is. Each of the 13 goodwill theories described above focuses on an understanding that goodwill is either a theory that shows the existence of goodwill or a theory that is associated with the measurement of goodwill.

Each theory is classified as either relating to the existence of goodwill or the measurement of goodwill, as set out in Table 2.1.

Table 2.1: Aspects of Goodwill Theories

Theory	Aspect of goodwill
Customer Patronage	Supports the existence of goodwill
Annuity Theory	Approach to the valuation of goodwill
Future Excess Profits Theory	Approach to the valuation of goodwill
Master Valuation Account Theory	Approach to the valuation of goodwill
Certain Intangible Resources	Approach to the valuation of goodwill
Market Value Theory	Approach to the valuation of goodwill
Momentum Theory	Supports the existence of goodwill
Imperfect Competition Theory	Supports the existence of goodwill
The Residuum Concept	Approach to the valuation of goodwill
The New York Method	Approach to the valuation of goodwill
Imperfect Measurement Theory	Supports the existence of goodwill
Premium for Control	Approach to the valuation of goodwill
„Bad Buy“ or Loss on Acquisition	Approach to the valuation of goodwill

The majority of theories (nine out of 13 or about 70%) refer to the valuation of goodwill, whereas only a small number (four out of 13 or about 30%) are associated with the conditions that are necessary to support the existence of goodwill.

Therefore, nine theories, including Annuity Theory, Future Excess Profit Theory, Master Valuation Account Theory, Certain Intangible Resources, Market Value Theory, The Residuum Concept, The New York Method, Premium for Control and the „Bad Buy“ or Loss on Acquisition, can be considered theories relating to how goodwill may be valued, rather than how goodwill is defined.

There are four theories that mostly address questions pertaining to the conditions necessary to sustain the existence of goodwill, rather than how it might be measured or what it might include in the event that it came into existence. These four theories

are Customer Patronage, Momentum Theory, Imperfect Competition Theory and Imperfect Measurement Theory.

It is striking that none of the theories analysed above addresses goodwill in the context of an industrial setting or a particular business. Generally, they do not give explanations of the emergence or sustained existence of goodwill with reference to a specific causal factor, for instance the concept of custom attraction, which is so common in legal formulations of goodwill.

With regard to these considerations, Imperfect Measurement as created by Gynther (1969) is particularly useful for understanding what the phenomenon of goodwill actually represents. Gynther maintained that it is very important to be precise about separating methods used as a basis for measuring goodwill and the nature of goodwill. In relation to the former, Gynther stated that:

... the difference between (a) the total net present value of the whole entity, and (b) the sum of the net present values of those of its net assets that could be valued directly, is 'Goodwill'. (Gynther, 1969, p.248)

In relation to the latter, Gynther stated that:

Goodwill exists because assets are present, even though they are not listed with the tangible assets. For example, 'special skill and knowledge,' 'high managerial ability,' 'monopolistic situation,' 'social and business connections,' 'good name and reputation,' 'favourable situation,' 'excellent staff,' 'trade name' and 'established clientele' are assets in this category. The sum of the value of these assets (commonly referred to as intangible assets) is the value of goodwill. (Gynther, 1969, p. 247)

This analysis is consistent with the regulation of accounting standards in SSAP 30, *Business Combinations*, issued in January 2001 and HKFRS 3, *Business Combinations*, issued in August 2004. In these standards, goodwill acquired in a business combination, using the purchase method, is the excess of the cost of the acquisition over the acquirer's interest in the fair value of identifiable assets, liabilities and contingent liabilities recognised, and should be reflected as an intangible in the consolidated financial statements.

Thus, goodwill has been variously regarded as unruly, unsettled and an unphysical item. The question of whether it is an asset or not is discussed in the next section.

2.5. Is Goodwill an Asset?

2.5.1. Generally Accepted Definition of Assets

Assets or economic resources are the life-blood of both business and not-for-profit entities. The definition of assets in the professional literature is numerous (Carnegie, 1987) and has common agreements. According to paragraph 4.4 of *Conceptual Framework for Financial Reporting 2010* issued in October 2010 by HKICPA and paragraph 49 of *Framework for the Preparation and Presentation of Financial Statements* issued in July, 2004 by Australian Accounting Standard Board, an asset is a “resource controlled by the entity as a result of past transactions or events from which future economic benefits are expected to flow to the entity”.

There are three essential characteristics of assets, namely, future economic benefits, control by a particular entity, and occurrence of a past transaction or event. The first characteristic implies that an asset has the potential to contribute, directly or indirectly, to the flow of cash and cash equivalents to the business in some way; for

example, it can be exchanged, or it can be used to settle a liability or it can be used singly or in combination with other assets to produce products or services.

The second characteristic of assets reveals that the entity must have control over the future economic benefits so that the entity has the capacity to benefit from the asset. The entity that owns the asset is the one that can exchange it, use it for producing goods or services, exact a price for others' use of it, use it to settle liabilities, or hold it.¹⁴ The third characteristic of assets denotes that transactions or other events giving rise to the entity's control over future economic benefits must have taken place. Apparently, items become assets of the entity as the result of a transaction or an event or a circumstance that has already occurred.

2.5.2. Does Goodwill Match the Definition?

Even though goodwill has not been precisely defined, there seems to be general agreement on some of the characteristics of goodwill. Determining whether goodwill is an asset entails considering the nature of goodwill to ascertain whether it possesses the essential characteristics of an asset. Under the International Accounting Standards Committee's definition issued in 1980, goodwill has some characteristics:

1. Goodwill is indescribable and belongs to a business by its nature. Thus it cannot be separate from the business.
2. The value of goodwill can change significantly along with internal and external conditions of the business.

¹⁴ Paragraph 184 of Concept Statement No. 6 – *Elements of Financial Statements*.

3. Goodwill amount and the approach employed for evaluating it vary for each firm.

As discussed in the previous section, the literature is replete with various opinions about the nature of goodwill. However, two main concepts include many of the assumptions underlying the divergent opinions, namely, goodwill represents Certain Intangible Resources and Excess Future Profits. Based on these two theories of goodwill, reconciliation between defined goodwill and the essential characteristics of assets is conducted for evaluating whether goodwill is an asset or not.

According to Certain Intangible Resources, there is an assumption that intangibles are contributing to the generation of a business's overall profits. Goodwill therefore, representing the collective future benefits from intangibles, should be viewed as an asset (Carnegie, 1987). With regard to Future Excess Profits, the assumption is that the various intangibles involved represent future excess profits. As a result, goodwill should be considered as an asset on the premise that it will produce cash flows over and above normal expectations. However, if the business has not been making a return in excess of a normal return, there would be no goodwill and no related asset.

In order to ascertain whether goodwill satisfies the second characteristic of an asset, it is important to determine whether an entity can obtain the benefit from goodwill and control others' access to such benefits. The view of control pertaining to goodwill was advocated by Beresford & Moseley (1983, p. 21): "control of access to the goodwill is conducted by not divesting the acquired entity". This implies that the control criterion will be satisfied providing the resources of the business acquired are maintained (Carnegie, 1987). Therefore, goodwill acquired in a business combination, commonly named purchased goodwill, is not banned from being considered an asset. It is argued that "goodwill represents collective future benefits, with control of the access to these

benefits being achieved so long as an entity's resources are not diverted" (Carnegie, 1987, p. 31).

To satisfy the third characteristic of an asset, it is necessary to establish whether goodwill existed as the result of past transactions or events. There is no particular problem involved if there has been some form of sale transaction arising from a business combination (Carnegie, 1987). This transaction is normally represented by a sale contract or other similar supporting documents. Goodwill would also be based on past transactions or events giving rise to internally generated goodwill.

As defined under the two major goodwill concepts, goodwill is not excluded from being regarded as an asset in accordance with the generally accepted definition of assets and the International Accounting Standards Committee's definition.

However, not all researchers in this field agree with the opinion that goodwill is an asset. Chambers (1966, p. 212) concluded that "goodwill is not an asset because it is neither severable, nor measurable, and consequently has no place on financial statements". Sands (1963, p. 183) also argued against considering goodwill as an asset, based on the fact that intangibles are not measurable. May (1975, p. 23) advocated this view by stating that "Goodwill attributable to the corporation as a whole can have no value to the corporation since it is not possible for the corporation to realize its value". Hendriksen (1982, p. 409) also argued that "... since goodwill is not a severable asset, it should not be reported separately".

These opinions notwithstanding, there is a huge volume of literature supporting the view that goodwill is an asset. Paton (1968, p. 143) stated that "assets are not inherently tangible or physical. An asset is an economic quantum ... One of the common mistakes we all tend to make is that of attributing too much significance to

the molecular conception of property.” Gynther (1969, p. 255) concurred that “although these assets might be characterized by a lack physical substance, they often represent value in the form of future beneficial service potential and are no different, in an economic sense, from assets with physical substance”.

Smith (1969) argued that goodwill is an investment and should be presented on the balance sheet. MacIntosh (1974) stated that goodwill is generally correctly accounted for as an asset because it represents an investment in a group of intangible assets and should be included among the total assets in an entity’s balance sheet. Bloom (2007, p. 34) assumed that “the stream of future benefits” definition of an asset meshes well with the super-profit concept; with this mindset, goodwill does qualify for recognition as an asset, because it is aligned with a specific (through residual) flow of benefits”.

The fact that goodwill cannot be sold separately from the rest of the business (i.e. goodwill sticks to the business as a whole), or measured easily, does not negate the fact that goodwill may have significant value to the business and therefore should be put in the consolidated financial statements (Falk & Gordon, 1977). As analysed above, goodwill satisfies the characteristics of an asset in the prevailing accounting practice, although there still exist some arguable issues relating to whether or not goodwill is an asset. It is therefore accepted that goodwill is not excluded from being defined as an asset.

2.6. Practice of Avoiding and Altering Goodwill Recognition

Goodwill arising from a business combination, and regarded as an asset in case the acquirer usually pays a higher price than the market value of the acquired company’s identifiable assets, such as equipment and inventories, net of any liabilities taken on

(Sherman *et al.*, 2003). That premium over the net fair value of identifiable assets is regarded as goodwill and is reflected on the acquirer's accounting books as an asset.

To further understand the nature of goodwill, it will be useful to examine the following example. Five hundred thousand dollars is paid for a company with net identifiable assets, including current assets and non-current assets less any liabilities taken on, of \$400,000. The premium, an amount of \$100,000, is called goodwill and would be posted as an intangible asset on the consolidated balance sheet of the acquirer by writing a double entry as below:

Dr. Net identifiable assets	\$400,000
Dr. Goodwill	\$100,000
Cr. Purchase consideration	\$500,000

In principle, the value of goodwill recorded in the balance sheet of the acquirer is the value of the acquired company's name, reputation and other intangible assets, such as intellectual property and work processes that, because of imperfect measurement, cannot be identified and measured separately. Goodwill also comprises elements relating to imperfections such as premiums or discounts arising from the process of negotiations (Carnegie, 1987).

In the example shown above, determining the fair value of identifiable assets seems to be more important than recording the value of goodwill because goodwill recognition that reflects on the acquirer's balance sheet is simple. In practice, there are a number of approaches that assist in avoiding the recognition of goodwill or altering the magnitude of goodwill. To some extent, either avoiding the recognition of goodwill or misstating the magnitude of goodwill would affect the reliability of financial information in the consolidated financial statements. Two methodologies have been

adopted in the United States and widely discussed in the literature, namely, pooling-of-interests accounting, and in-process research and development.

2.6.1. Pooling-of-Interests Accounting – Avoidance of Goodwill Recognition

More than 30 years ago, considerable controversy focused on how companies accounted for mergers and acquisitions (Weber, 2004). The controversy emanated from the choice between the pooling-of-interests method and the purchase accounting method. Under the pooling-of-interests accounting method,¹⁵ the balance sheets of each partner in the merger are simply added together, and the new company reports a combined historical book value. As a result, there is no item of goodwill existing in the financial reports of the new company.

Under the purchase accounting method, one company must be the acquirer, and the other the acquiree. The acquired company's identifiable assets are recorded at fair values and any excess of the purchase price is recorded as goodwill. The balance sheet of the combined company is reported as the combination of the acquiring company's book value and the acquired company's fair value plus goodwill (Dunstan *et al.*, 1993; Sundararajan, 1995; Lewis, 2000).

The pooling-of-interests method was first employed in the United States in 1950 by the Committee on Accounting Procedure (Hughes, 1982) and prior to the release of the Accounting Principles Board (APB) Opinion No. 16 – *Accounting for Business Combinations*, and APB Opinion No. 17 – *Intangible Assets* in 1970. There was no regulation requiring the choice between pooling-of-interests accounting and purchase accounting in the United States. In practice, pooling-of-interests accounting was the generally accepted method (Lewis, 2000).

¹⁵ Pooling-of-interests accounting is also called „merger accounting“ (Sherman *et al.*, 2003).

Pooling-of-interests was common among companies because no goodwill was recognised, and as a result, there was no goodwill to amortise in post-merger accounting periods (Sherman *et al.*, 2003). The Financial Accounting Standards Board (FASB) suggested that companies were willing to incur costs associated with the use of the pooling-of-interests method because share prices are favourably influenced by the application of the pooling method (FASB, 1997, p. 24).

In June 2001, the FASB voted to eliminate pooling-of-interests as an acceptable method of accounting for business combinations and issued the Statement of Financial Accounting Standards (SFAS) No. 142 – *Goodwill and Other Intangible Assets*. Under SFAS No. 142,¹⁶ United States companies are required to capitalise goodwill and amortise it, applying a straight-line basis for a period of not more than 40 years (Johnson & Petrone, 1998).¹⁷

The amount of goodwill amortisation is recorded as an expense, and consequently this reduces earnings. For this reason, companies had a tendency to apply the pooling-of-interests method that produces no goodwill value and has no affect on profits, rather than employ the purchase method that produces goodwill and influences profits (Johnson & Petrone, 1998; Weber, 2004). As a result, companies employing the pooling-of-interests method produced higher reported earnings than companies using the purchase method. Hence the reason many United States companies kept goodwill off their balance sheets (Sherman *et al.*, 2003, p. 93).

The generally accepted principle in a business combination was that the purchase method was employed to account for goodwill if the business combination was not in

¹⁶ Accounting Principles Board (APB) Opinion No. 17 „Intangible Assets“. According to APB No. 17, immediate elimination of goodwill was prohibited, as was the recognition of internally generated goodwill.

¹⁷ The majority of United States companies amortize goodwill over the maximum allowable useful life of 40 years (Duvall *et al.*, 1992).

a merger, otherwise the pooling method would be used. Many companies doing business in the United States admitted that the business combination in question was a true merger of equals rather than the acquisition of one company by another company to take advantage of employing the pooling method.

The United States companies tried to design purchase consideration to satisfy the requirements of the pooling method. Purchase consideration, generally, should be all equity (i.e. no cash consideration), otherwise it could be deduced that the company paying cash must be buying the other, which would make the deal an acquisition, not a merger.

Few business combinations are genuine mergers of equals, and acquisition is apparently not a merger; but if the business transaction is structured in the right way it can be regarded as pooling-of-interest (Sherman *et al.*, 2003). Dr. Lewis, president and chief executive officer of Prospect Technologies Company, did not agree to prohibiting the use of the pooling-of-interest method of accounting. He stated: "... the result of the merger created a synergy that allowed us to bid and win contracts that would not have been possible by either of the two previous companies individually" (Lewis, 2000, p. 5). Spacek (1964) supported neither the capitalisation and amortisation of goodwill nor the pooling-of-interest method.

The basic hypothesis is that a business combination is regarded as an opportunistic activity for maximising post-acquisition profit. By choosing the pooling-of-interest method, companies can control earnings management.

There is evidence that business combinations were structured in a manner that satisfied the requirements of the pooling-of-interest method (Watts, 2003) and acquirers offered greater purchase consideration to obtain cooperation with the target

company to extract the benefit of the pooling method (Nathan, 1988). It has also been found that companies were more likely to employ the pooling method where fair values substantially exceeded book values and more likely to adopt the purchase method where the carrying amounts closely matched market values (Copeland & Wojdak, 1969).

Another technique that affects recording the value of goodwill is In-Process Research and Development (IPRD). This technique, which relates to the classification of the premium over IPRD, rather than classifying the premium, will be debated in the next section.

2.6.2. In-Process Research and Development – Altering the Recorded Value of Goodwill

The IPRD phenomenon came to public attention in the mid 1990s, when many companies announced corporate acquisitions, in which incomplete research and development projects constituted the major asset acquired (Deng & Lev, 2006).

According to Deng & Lev (2006), IBM's acquisition of the Lotus Development Corporation in July 1995 was among the first of the large cases in which IPRD played a prominent role. The total acquisition paid for Lotus Development Corporation was \$3,200 million. Under the purchase accounting method, IBM calculated the fair value of Lotus's tangible net assets (mainly cash, accounts receivables, land and buildings, equipment) at \$305 million, and the fair value of identifiable intangible assets (trademarks, assembled workforce and leasehold improvements) at \$542 million. Current software products were estimated at \$290 million. Deferred tax liabilities were valued at \$305 million. IBM also estimated the value of Lotus's IPRD, new products and services in the research and development process, at \$1,840 million,

making up almost 60% of the acquisition price. So, goodwill that represented the difference between the acquisition price and the total fair value of net assets amounted to \$564 million. Goodwill as an asset was reflected in the consolidated financial statements.

During that period, it was common for IPRD to account for from 60% to 80% of the total acquisition price (Annon, 1999; Sherman *et al.*, 2003). It is a fact that the higher the percentage of IPRD, the less the percentage of goodwill in the total acquisition price. Apparently, by taking advantage of opportunistic behaviour in valuing IPRD, the magnitude of goodwill is misstated.

As shown in the prominent instance above, IPRD is defined as the value allocated to R&D projects in acquisitions reported under the purchase method, and described as an intangible asset that is included in the acquisition price (Dowdell & Press, 2004).

According to the provisions in APB Opinion No. 16 – *Business Combinations*¹⁸ in accounting for business combinations under the purchase method, acquiring companies should apportion the acquisition price among tangible and intangible assets, based on the fair value of assets. Moreover, under paragraph 5 of the FASB Interpretation No. 4,¹⁹ costs assigned to assets to be used in a particular R&D project that do not have an alternative future use “shall be charged to expenses at the date of consummation of the combination”. This provision is consistent with the general treatment of R&D in the FASB Statement No. 2 – *Accounting for Research and Development Costs*, which was issued in 1974.

¹⁸ APB Opinion No. 16 – *Business Combinations* was promulgated by the American Institute of Certified Public Accountants in 1970.

¹⁹ FASB Interpretation No. 4 – *Applicability of FASB Statement No. 2 to Business Combinations Accounted for by the Purchase Method – An Interpretation of FASB Statement No. 2*, was promulgated in February 1975.

In the process of a business combination, the acquiring company should make judgments in allocating the purchase price to a series of assets including tangible and intangible assets. Regarding the value of intangible assets, the acquiring company also decides which parts or purchased intangible assets do not have alternative future use (Dowdell & Press, 2004). So the value of the assets allocated to R&D projects that seem to have no alternative future use is regarded as IPRD, treated as an expense and charged immediately upon consummation of the acquisition.

The difference between IPRD and goodwill in the purchase method is that IPRD is required to be expensed and charged immediately against earnings, whereas goodwill is required to be capitalised and amortised over future periods (Dowdell & Press, 2004; Deng & Lev, 2006). By classifying rather relatively and subjectively, there is a high possibility that an acquiring company misstates IPRD; IPRD is usually overstated rather than understated. This affects the value of goodwill recorded in the consolidated financial reports.

Deng & Lev (2006) argued that the immediate expensing of IPRD significantly reduces the asset and equity bases of the acquiring company, thus inflating widely used profitability measures, such as return on assets or return on equity. Management would prefer recording expense at once and starting the company off with a clean slate, to treating R&D as an intangible asset that will affect profits until it is completely amortised (Sherman *et al.*, 2003).

Hence many companies adopt opportunistic behaviour in allocating acquisition price to IPRD for the sake of earnings management. In responding to earnings management and public criticism, the FASB stated that companies would be required to expense the amount of IPRD against future periods, rather than expense it immediately at the time of acquisition. However, in July 1999, the FASB stated that the amount of IPRD

applied against future periods should be deferred and the issue further investigated (Dowdell & Press, 2004).

The FASB also intended to issue an exposure draft that would capitalise IPRD and then impair it periodically. A final standard pertaining to recognising and treating IPRD was expected in 2005 (Deng & Lev, 2006). In January 2009 the FASB announced that the project in relation to IPRD treatment was removed.²⁰ Consequently, a standard of IPRD never became a reality. Nowadays, the topic of accounting for IPRD remains controversial and is still fertile ground for mischief in accounting treatments (Sherman *et al.*, 2003).

By restructuring the merger permits United States firms to apply the pooling-of-interest accounting method for avoiding value of goodwill. Allocating the acquisition price to IPRD based on subjective assumptions resulted in writing it off immediately upon the date of acquisition. This indicates that United States firms may have had motives for avoiding goodwill recognition or altering the magnitude of goodwill.

While pooling-of-interests and IPRD did not exist in Hong Kong, there is the question of whether or not Hong Kong firms employed a means of avoiding goodwill recognition or altering the magnitude of goodwill value.

There would have been some inconsistencies and problems in practice bearing on initial goodwill recognition in the balance sheet of an entity. The next issue pertaining to goodwill focuses on subsequent treatments of goodwill.

²⁰ The scope of the project was to remove the inconsistency between accounting for research and development assets required in a business combination and accounting for those acquired in other transactions.

2.7. Measurement of Purchased Goodwill

Under the purchase method of accounting for business combinations, goodwill value is the excess of the cost of acquisition over the fair value of identifiable net assets (Seetharaman *et al*, 2004). So, in order to measure the amount of goodwill to be recorded as an asset, determining the cost of acquisition and fair value of identifiable net assets is necessary.

At the date of acquisition, the fair value²¹ of the acquisition cost should be ascertained. The cost of acquisition may consist of cash in capital and may also consist of non-monetary considerations such as shares issued and liabilities taken on. In instances where shares are issued as part of the purchase consideration, the value attributed to these shares may be very difficult to determine, especially where the shares are not listed in the securities market. Even where the shares are listed, their values may be uncertain if the share prices have been volatile or are temporarily affected by the activity associated with a business combination (Carnegie, 1987). In the content of paragraph 53 of IFRS 3 – *Business Combinations*, acquisition-related costs are generally recognized as expenses.

Having determined the cost of acquisition, the cost is assigned to the underlying net assets (i.e. the identifiable assets and liabilities acquired) on the basis of their fair values at the date of acquisition. Goodwill, which is the excess of the cost of acquisition over the fair value of identifiable net assets, will then be recorded as an asset in non-current assets in the acquiring consolidated balance sheet. The issue of adjustments of goodwill after recognition will be discussed in the next section.

²¹ Fair value is a market value method for measuring cost and reflects the value an asset could be exchanged for in an arm's length transaction between knowledgeable and willing parties.

2.8. Goodwill Adjustment Subsequent to Recognition

The appropriate adjustment for goodwill subsequent to acquisition has been debated for many years. One view was in favour of writing goodwill off at once against the reserve account in line with the prudence principle. The second view was to keep goodwill permanently with no full elimination or amortisation unless a permanent diminution in value was evident. The other view was to amortise goodwill over the useful economic life in line with the matching principle (Seetharaman *et al.*, 2004).

It is not uncommon practice to adjust goodwill after it has been recorded in the account. Over time and across a range of jurisdictions, a tangled web of different goodwill adjustments subsequent to recognition has occurred. There are three major types of adjustments, namely, lump sum write-off, ad-hoc write-off and systematic (periodic) write-off (Carnegie, 1987).

2.8.1. Lump Sum Write-Off

According to this approach, the amount of goodwill acquired in a business combination is eliminated immediately against reserves in the balance sheet or written off to the income statement in the year of acquisition (Elliott & Elliott, 2006).

Capitalisation and amortisation are arbitrary and highly likely to make net income understated (Spacek, 1964); therefore, a better treatment is to eliminate goodwill immediately against retained earnings. Another argument for immediate write-off is that it is reasonable to expect the goodwill relating to the company at the time of purchase will eventually disappear over time (Seetharaman *et al.*, 2004). Yet another reason is that the write-off achieves the best matching of benefits with the costs incurred (Carnegie, 1987).

Supporters of this school argue that goodwill poses measurable difficulties and is different from other assets, that is, goodwill cannot be sold separately in most cases. In these situations, carrying the intangible asset in the consolidated balance sheet is of little value to users of financial statements (Seetharaman *et al.*, 2004).

2.8.2. Ad-Hoc Write-Off

An ad-hoc write-off initially capitalises goodwill acquired in a business combination as an intangible, at cost, without amortisation unless a permanent diminution in value becomes evident (Carnegie, 1987). In the case of apparent permanent diminution goodwill is usually reviewed periodically, and a write-off equivalent to impairment in value is reflected in the consolidated financial statements.

In support of this approach, Ballie (1976) and Leo & Hoggett (1984) argued that goodwill itself does not reduce in value because it is continually maintained or replenished through the normal business operation. If there is any indication that goodwill is not being maintained or replenished, then the original investment in goodwill will be reduced by an appropriate amount that is determined by management (Carnegie, 1987).

This school was opposed by other researchers such as Most (1977) and Emanuel (1973) because it confuses or combines internally generated goodwill subsequent to an acquisition with that purchased at the date of acquisition. As a result, it provides for the recognition of internally generated goodwill in the consolidated balance sheet.

2.8.3. Systematic Write-Off

When goodwill value is initially capitalised and recorded as an asset in the consolidated financial statements, at cost, a systematic write-off of goodwill²² should be employed over a finite term. A periodic write-off of goodwill acquired in a business combination involves a policy of amortisation over a reasonable period of time. Early support for this school included Guthrie (1898) and Hatfield (1909).

According to Seetharaman *et al.* (2004), there are three reasons for supporting systematic amortisation. The first is based on the premise of the matching principle (Leake, 1930; Paton, 1941) where the cost of purchased goodwill should be amortised as a means of matching the cost of securing the income actually obtained. The second is that under stewardship accounting, management should be asked to justify acquisition of other companies by proving that cash inflows from a business combination exceed the cash outflows incurred when the investment was made. The final reason involves the Momentum Theory of Goodwill (Nelson, 1953), that the purchaser of a company normally pays a large sum of money for the goodwill because he/she wants a starting push in the new company, rather than starting fresh in a similar company and devoting so much effort and money over a long period of time to develop such goodwill (Seetharaman *et al.*, 2004).

In calculating the amount of the systematic amortisation of goodwill, determining an arbitrary useful life for goodwill acquired is necessary. However, it is very difficult to ascertain the accuracy of useful goodwill life. So this creates the prospect of a mismatch between income and expenses. According to Baillie (1976), any mismatching may be unlikely to be material and in any event, would be less material than failing to consider the diminution in the value of purchased goodwill.

²² A systematic write-off of goodwill is a periodic write-off of goodwill.

According to Morrissey (1966), a systematic policy of goodwill is consistent with the treatment of depreciable assets which have finite useful lives. However, it is contentious that the selection of an arbitrary period is consistent with the notion that goodwill eventually disappears (Carnegie, 1987).

2.9. Conclusion

Over time and across a range of jurisdictions, a variety of goodwill definitions have existed in the accounting field and in legislation. As early as 1620, courts attempted to define goodwill and the circumstances from which it might arise. There are many theories defining goodwill from the accounting perspective that support its existence or valuation.

The issue of accepting goodwill as an asset has been a debatable issue for a long time. However, based on the characteristics of goodwill and compared with the characteristics of assets, goodwill is viewed as the most intangible of intangibles (Davis, 1992) and recorded in the consolidated financial statements.

There have been controversies pertaining to the improper use of the pooling-of-interests accounting method for avoiding goodwill recognition and profit impact, excessive or deficient IPRD for altering the magnitude of goodwill, immediate post-acquisition write-offs and the use of aggressive expense deferral amortisation techniques (Carnegie, 1987; Carlin *et al.*, 2007b). To some extent, all affect the reliability of financial information in the statements of reporting entities.

From 1 January 2005, goodwill treatment has been conducted according to the new method of impairment testing. It is interesting to recognise that the rejection of the traditional „capitalise and amortise“ method in treating goodwill after acquisition is

not new. The shift from the traditional method of „capitalise and amortise“ to the IFRS „capitalise and test for impairment annually“ is not inherently new, as evidenced in a growing body of literature dealing with both the conceptual foundations and practical consequences of the IFRS and US GAAP impairment testing method.

With regard to new method of „capitalise goodwill and test it for impairment“, there is a lack of evidence showing that earnings figures under the new regime are more relevant than those generated under the traditional regime of „capitalise and amortise“ (Chen *et al.*, 2006). There is also not enough evidence of undue delays in recognising impairment charges (Ramanna & Watts, 2007) and evidence of gaming in the way in which goodwill is allocated between cash generating units for minimising the chance of forced impairment charges (Zhang & Zhang, 2007).

Many researchers have expressed wide-ranging concerns over the quality of information derived from the impairment testing framework for goodwill recognition, measurement and reporting. For example, Lonergan (2007) assumed that the IFRS impairment framework is more likely to cause misleading results at odds with any discernible thread of principle. However, in showing their concerns, these authors seem to have neglected the issue of compliance with the IFRS as well as specific accounting standards.

Researchers seem to believe that the deficiencies in information quality attributable to the framework operation result from factors such as the opportunistic exercise of discretion, and that financial statement preparers naturally comply with the technical requirements of the IFRS which include the impairment testing framework.

In the early years of IFRS implementation, the issue of compliance was very important. Indeed, the degree to which reporting firms align with the technical

requirements of accounting standards is a crucial issue that has the capacity to materially influence items in the financial statements; non-compliant reporting firms will undermine the economic decisions of financial statement users.

Possible reasons for not adhering to the technical requirements of an applicable reporting framework may include a lack of understanding of the reporting framework, a lack of resources to fully implement the requirements of applicable standards on the part of preparers, a lack of understanding of technical requirements on the part of auditors, and a highly intricate accounting standard.

The next chapter will describe the evolution of goodwill reporting arrangements and practices in Hong Kong and review the key assumptions necessary to be conducted by a reporting firm during the process of goodwill impairment testing. A variety of disclosure requirements in HKAS 36 – *Impairment of Assets* will be presented.

Chapter 3: Technical Requirements of Goodwill

Impairment in Hong Kong

3.1. Introduction

Goodwill has long been defined as an asset under legislation and in the accounting literature. Over the past 40 years there have been a number of approaches to accounting for acquired goodwill including keeping goodwill in the balance sheet unchanged, writing off the cost of the goodwill to reserves in the year of acquisition, writing off the cost of goodwill to the profit and loss account in the year of acquisition, and amortising goodwill over its expected life (Elliott & Elliott, 2006).

However, as the global financial reporting landscape has altered, the recognition, measurement and reporting of items in financial statements including goodwill has also undergone significant changes because IFRS has been substituted for localised accounting frameworks.

Impairment testing emerges as very important in the process of reflecting the value of assets as their recoverable amounts. The failure of an entity to promptly recognise an impairment loss leads to overstating current profits and permitting bigger book values to accumulate on the balance sheet than would otherwise be the case (Carlin *et al.*, 2009).

The impairment testing regime is regarded as a particularly technically challenging element of the IFRS framework (Hoogendoorn, 2006). The difficulties and intricacies associated with the implementation of the IFRS impairment testing method both derive from the significantly increased complexity and highly subjective

requirements, and intricately detailed disclosure regime promulgated in the standard (Loneragan, 2007; Carlin *et al.*, 2008a).

Under the new standard of goodwill impairment, goodwill acquired in a business combination is no longer amortised but is tested for impairment annually. Testing goodwill for impairment requires not only the application of prescriptive financial models, but also results in the burden of compliance because reporting firms are supposed to provide details of assumptions employed, benchmarks referred to and processes adopted in the formation of a judgement. Determination of goodwill impairment leaves room for management to interpret, judge and mould data of impairment values (Massoud & Raiborn, 2003). Management is offered creativity to report data of goodwill impairment in financial reporting.

Various techniques have been employed in practice to adjust goodwill after its initial recognition. Over time and across a range of jurisdictions a tangled web of contradictory goodwill treatments has existed worldwide and Hong Kong is no exception. As a British colony, for a long time Hong Kong accounting standards were very much influenced by United Kingdom standards and practices. The diversity of reporting arrangements and goodwill practices in Hong Kong also has distinct features.

The purpose of this chapter is to provide an overview of the technical requirements of goodwill impairment in the context of Hong Kong. To achieve this objective, the remainder of this chapter is set out as follows. Section 3.2 discusses the diversity of goodwill reporting arrangements and practices in Hong Kong. Section 3.3, the main part of this chapter, presents the key technical requirements of goodwill impairment. Section 3.4 contains some brief conclusions in relation to goodwill impairment in Hong Kong.

3.2. Goodwill Reporting Arrangements and Practices in Hong Kong

To better understand the reliability of disclosures of financial statements pertaining to goodwill, it is necessary to review the troubled history of goodwill accounting and reporting. Over time and across a range of jurisdictions, a series of controversial and contradictory treatments of goodwill has been described in the accounting standard, and there is a striking variety and number of disagreements on the issue of goodwill (Canning, 1929).

Unsurprisingly perhaps, accounting and reporting practice pertaining to goodwill remains contentious. This is the case in Hong Kong as well as in the United States, the United Kingdom, Australia and other countries.

In Hong Kong, goodwill reporting arrangements and practices have evolved through four distinct phases. These are:

Phase 1: Pre-regulation of goodwill arrangements and practices – for the period prior to March 1984;

Phase 2: Post-regulation of goodwill arrangements and practices – for the period from March 1984 to December 2000;

Phase 3: Post-regulation of goodwill arrangements and practices – for the period from January 2001 to December 2004;

Phase 4: Adoption of IFRS-based impairment testing – for the period from January 2005 to the present.

3.2.1. Pre-Regulation of Goodwill Arrangements and Practices

As a British colony for over 100 years prior to July 1997, Hong Kong Accounting Standards (HKAS) and professional self-regulations were heavily influenced by United Kingdom (UK) Standards and Practices (Ball *et al.*, 2003). The legal requirements of firm accounts and financial reporting were stated in the Companies Ordinance in 1932, which was based on the UK Companies Act of 1929.

However, legal requirements have since been simple and limited both in the form and content of financial statements (Lee, 1997). There were no specific accounting standards prescribed in the compulsory law except for the main principle that financial reports should be formed with „true and fair“ expression (Lee, 1997).

The main professional accounting body in Hong Kong is the Hong Kong Society of Accountants (HKSA),²³ which was founded in 1973. HKSA established the Accounting Standards Committee (ASC) in February 1982 which had the responsibility of preparing definitive standards of accounting and reporting for the accounting profession (Hui & Ng, 2006).

No goodwill reporting standard had existed in the legal accounting framework until the issue in March 1984 of the SSAP 1 – *Presentation of Financial Statements* and Accounting Guideline 2.204 – *Accounting for Goodwill*.

Prior to March 1984, as no established accounting standards existed in Hong Kong, the UK Statement of Standard Accounting Practices (SSAP) were applied by Hong Kong firms (Lee, 1997). In this period, the dominant method relating to goodwill in the United Kingdom was to write off (eliminate) directly to reserves in the year of

²³ HKSA changed its name to the Hong Kong Institute of Certified Public Accountants (HKICPA) on 8 September 2004.

acquisition (Seetharaman *et al.*, 2004). So before March 1984, the most common pre-regulation accounting treatment for reporting firms was to adopt an immediate lump sum write-off of goodwill against reserves in the consolidated accounts in the year of acquisition (Lee, 1997).

3.2.2. Post-Regulation of Goodwill Arrangements and Practices (from March 1984 to December 2000)

Perceiving the necessity of accounting for and the reporting of goodwill that was acquired in a business combination in financial accounting, HKSA promulgated a reporting standard relating to goodwill which existed in the legal framework of SSAP 1,²⁴ *Presentation of Financial Statements*, and Accounting Guideline 2.204 – *Accounting for Goodwill*.

Under the requirements of these standards, positive goodwill that is an excess of the cost of the acquisition over the acquirer's interest in the fair value of the identifiable assets and liabilities acquired in a business combination, may be eliminated from the account of reserves in the balance sheet or amortised on the straight-line basis to the profit and loss account over its economic life (Moliterno, 1993; Kealey, 1996). In the case of negative goodwill, an excess of the acquirer's interest in the fair values of the identifiable assets and liabilities acquired over the cost of the acquisition should be credited directly into a reserve account in the balance sheet.

Based on the requirements of SSAP 1 and Accounting Guideline 2.204, Hong Kong reporting firms had the right to either write goodwill off immediately or capitalise and amortise it on the straight-line basis. According to Lee (1997) and Kealey (1996),

²⁴ SSAP 1 was issued in March 1984 and revised several times in May 1999, August 2001 and December 2001.

Hong Kong reporting firms have shown a preference for writing off goodwill rather than amortizing it.

This application is the same in the pre-regulation of goodwill practices in Hong Kong and also the same as the approach that United Kingdom firms employed, but different from the approaches that firms in the United States and Germany applied with „capitalised and amortised“ goodwill.

There are many reasons to explain the motives of management of reporting firms in writing goodwill off immediately, including capitalisation and amortisation are arbitrary and likely to understate retained earnings (Spacek, 1964), or achieving the best matching principles between benefits and costs incurred (Carnegie, 1987).

3.2.3. Post-Regulation of Goodwill Arrangements and Practices (from January 2001 to December 2004)

In 2001, the Financial Accounting Standards Committee (FASC), a member of HKAS, had promulgated more SSAPs that came into effect on or after 1 January 2001. Some legal accounting frameworks relating to goodwill include SSAP 29 – *Intangible Assets*; SSAP 30 – *Business Combination*; SSAP 31 – *Impairment of Assets*; and Interpretation 13 – *Goodwill – continuing requirements for goodwill and negative previously eliminated against credited to reserves*.

In SSAP 30, goodwill was recognised differently from the past. It was carried at cost less any accumulated amortisation and any accumulated impairment losses. SSAP 30 requires a firm to capitalise goodwill immediately after it appears because of a business combination and amortise it under a straight line basis over its estimated

useful life, not exceeding 20 years from initial recognition. If not, justifications should be made.

If the amortisation period of goodwill is greater than 20 years, the firm should test for impairment by determining the recoverable amount of goodwill for identifying any impairment losses even if there is no indication that it is impaired. SSAP 31 states that if there is an indication that goodwill may be impaired, whether it belongs to an internal or external source of information, the recoverable amount should be estimated for CGUs to which goodwill will be allocated. The recoverable amount of CGU assets is then compared to its carrying amount and impairment loss (if any) is recognised in the income statement.

SSAP 31 requires reporting firms to test for impairment through three steps. First, goodwill must be associated with a so-called cash generating unit (CGU)²⁵ or a group of CGUs. Second, the recoverable amount of the assets attributed to the CGU should be determined. Finally, if the carrying amount of CGU assets exceeds its recoverable amount, impairment loss should be recorded in the financial statements.

In the research on the harmonisation of selected financial reporting items in Hong Kong, Australia and the United Kingdom, Bayerlein & Farooque (2009) surveyed 18 firms in each country. With regard to accounting choices of goodwill in 2003 in Hong Kong, nine out of 18 firms (accounting for 50% of the total sample) capitalised goodwill and amortised it based on the straight-line method with useful lives not greater than 20 years. Five of the 18 firms (about 28% of the total sample) capitalised and amortised goodwill based on the straight method but failed to disclose the useful

²⁵ Cash generating unit (CGU) is defined as the smallest identifiable group of assets that generates cash inflows from continuing use and are largely independent of the cash inflows from other assets or groups of assets (paragraph 5 of SSAP 31).

lives of goodwill. Four of the 18 firms (about 22% of the total sample) disclosed no method employed pertaining to goodwill.

Interestingly, almost all of the firms with goodwill had policies relating to an amortisation period of goodwill of not more than 20 years (Carlin *et al.*, 2010b). This means that goodwill was capitalised and amortised based on estimated useful lives and not tested for impairment losses in the period.

3.2.4. Adoption of IFRS Impairment Testing

In 2001, owing to the importance of convergence with IFRS, Hong Kong Financial Reporting Standards (HKFRS) were established to provide a fully legal accounting framework in Hong Kong. HKFRS can be understood to consist of HKFRS, HKAS and Interpretations. HKICPA mandated the Financial Reporting Standards Committee (FRSC) to develop Financial Reporting Standards (FRS) for achieving harmonisation with IFRS and required the Standard Setting Steering Board (SSSB) to review and advise on HKICPA's overall strategy, policies and process for setting FRS. In December 2004, HKICPA officially announced the completion of a full convergence with IFRS, and HKFRS came into effect from 1 January 2005.

Ultimately, Hong Kong firms would apply their own version of an accounting framework that came into effect on 1 January 2005. Under the new accounting framework, Hong Kong firms were required to comply with all HKFRS in the recognition, measurement and disclosures of all items in the financial statements. The setting of HKFRS assured that regulatory bodies in Hong Kong were very active in providing a fully legal framework that was compatible with prevailing international accounting standards.

HKAS 36 – *Impairment of Assets*, HKAS 38 – *Intangible Assets* and HKFRS 3 – *Business Combinations*, standards dealing with goodwill treatments, were also adopted for annual reports commencing on or after 1 January 2005. For the period from 2001 to 2004, all firms having goodwill amortised it for not more than 20 years, so SSAP 31 seems to have been neglected for the purpose of goodwill impairment. Therefore, these standards produced some significant new procedures, which had a material impact on treatments of goodwill and its impairment in Hong Kong.

Under the new regime, recognising, measuring and disclosing goodwill impairment is very different from previous regulations. Specifically, there are three significant changes. First, goodwill acquired in a business combination is no longer amortised but tested annually for impairment. Second, goodwill should be allocated to each cash generating unit (CGU) or group of CGUs. Each unit represents the lowest level within the entity at which goodwill is monitored for internal management purposes and must not be larger than an operating segment. Finally, recognition of reversal of impairment losses for goodwill is prohibited in all cases.

Bayerlein & Farooque (2009) found that reporting firms in Hong Kong no longer amortised goodwill and changed to impairment testing of goodwill in 2006. However, the compliance levels were also limited. Specifically, 15 of the 18 reporting firms in 2006 (accounting for 83% of the total sample) applied impairment testing for goodwill. Only three firms (or 17% of the total sample) failed to disclose the method used for impairment testing of goodwill.

The adoption of HKAS 36 was a fundamental step in recognising, measuring and reporting goodwill impairment and created significant changes not only for preparers but auditors and policy makers as well. Under HKAS 36, the highly prescriptive and intricately technical requirements, to some extent, seem very subjective and

substantially different from previous years. The technical requirements of goodwill impairment will be discussed thoroughly in the next section.

3.3. Technical Requirements of Goodwill Impairment in Hong Kong

HKFRS, including HKAS 36, came into effect for Hong Kong firms with reporting periods on or after 1 January 2005. HKAS 36 was based on IAS 36 *Impairment of Assets*. In approving HKAS 36, HKICPA considered and consented to the Basis for Conclusions on IAS 36. That is why there are no substantial differences between HKAS 36 and IAS 36.

To meet the objective of not recording assets more than the recoverable amount, goodwill acquired in a business combination, being an asset of a firm, needs to be assessed annually for impairment. Conducting goodwill impairment testing is a complicated process. It is based on subjective and ambiguous assumptions that have been, and still are, controversial in the extant literature.

The goodwill impairment testing process involves judgement of a series of tasks such as identifying the CGU; allocating goodwill to CGUs; measuring the recoverable amount of CGU assets; and determining impairment loss for goodwill. These are all discussed in the following sections, as are timing of the impairment test for goodwill, reversal of the impairment test for goodwill, and related disclosures.

3.3.1. Identifying the Cash Generating Unit

Under HKAS 36, if there is any indication that an asset may be impaired, the recoverable amount should be estimated for the individual asset. If cash flows cannot be measured for individual assets, it becomes necessary to group the assets for testing

impairment. The group of assets that works together to generate cash flows is referred to as a cash generating unit (CGU). For example, a CGU consists of a fleet of aircraft or ships, or equipment used for a particular product. Assets associated with CGUs have known accounting book values, thus the carrying value of CGU assets consists of the sum of the book values of the individual assets associated with a particular CGU. As defined and set out in paragraph 6 of HKAS 36, a CGU is:

... the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets.

Identifying CGUs in the process of impairment testing is a very important task. In addition, the role of CGUs is crucial to the process of goodwill impairment testing, because it reflects whether impairment charge is being recognised (Boon, 2007; Guler, 2007; Carlin *et al.*, 2007b; Carlin *et al.*, 2008; Carlin *et al.*, 2008a; Carlin *et al.*, 2010b). Wines *et al.* (2007) researched the evaluating implications of the IFRS goodwill accounting treatment in Australia and concluded that the first potential difficulty is to identify the CGU. Identification of CGU assets in goodwill impairment testing is very subjective and is usually abused (Cearns, 1999). According to Dagwell *et al.* (2004), identification of a CGU could be more difficult in a situation in which a firm buys another firm and the latter comprises many separate subsidiaries, divisions or branches. The identification of CGU assets continues to provide much room for discussion (E&Y, 2004b).

A review of the contents of HKAS 36 strengthens the fundamental role played by CGUs in the process of impairment testing. As promulgated by precepts in the accounting standard, most assumptions, judgements and models cannot proceed without CGU identification.

The key issue is how to determine the „smallest identifiable group of assets“, which must generate „independent“ cash inflows from other assets or groups of assets. HKAS 36 provides extensive and detailed provisions showing a variety of examples relevant to use if CGU assets are an element of the impairment testing process.

Paragraph 69 states that identification of CGU assets involves judgement. It requires judgement on the part of management and the factors used in the CGU aggregation will change from firm to firm (E&Y, 2004b; Alfredson *et al.*, 2005). There is no question of comparability between firms because CGU is used for internal accounting and not external reporting disclosures.

In the practical approach to identifying CGUs, two tasks may be carried out. The first task is to identify the smallest group of assets for which a stream of cash inflows can be shown. These groups of assets are CGUs if other assets do not impact their cash inflows. In the second task, if the cash flows generated by a group of assets are not largely independent of those generated by other assets, the other assets are added to the group to form the smallest group of assets that generate largely independent cash inflows.

Information about the way in which the entity's operation are managed and controlled may assist in CGU identification. Some considerations in identifying CGUs are shown below:

First, consideration should be given to how management monitors the entity's operations such as by product, business, individual locations, district areas or regional areas.

Second, consideration should be directed toward how management makes decisions about continuing or disposing of the entity's assets or operations.

However, the issue of whether the cash inflows generated by an asset or groups of assets are largely independent generally does not depend on the manner in which the operations are managed and controlled. Meanwhile, a CGU includes the smallest group of assets that produces largely independent cash inflows. This depends on the manner in which assets actually operate and not on the way in which management chooses to manage them (E&Y, 2007).

The existence of an active market for the output of an asset or CGU is also a significant feature in identifying CGUs. Paragraph 70 of HKAS 36 requires that if an active market exists for the output of a group of assets, that group of assets should be identified as a CGU, even if some or all of the output of the group is used internally. The underlying principle is that the existence of an active market demonstrates that an asset or a CGU could produce cash inflows independently from the rest of the business through selling its output in that active market.

Standard setters determine the size or level of aggregation at which CGUs are defined for the purpose of impairment testing. This is given for limiting the CGU aggregation problem, where too few CGUs are defined or not disclosed, which causes avoided or deferred impairment charges. Paragraph 80 of HKAS 36 states that:

Each unit or group of units to which the goodwill is so allocated shall:

(a) represent the lowest level within the entity at which the goodwill is monitored for internal management purposes.

(b) not be larger than a segment based on either the entity's primary or the entity's secondary reporting format determined in accordance with HKAS 14 Segment Reporting.

Apart from the size or level of aggregation at which CGUs are defined for the impairment testing purpose, another concern involves the level of consistency with which firms have approached the definition of CGUs through time. To enhance the consistency with which firms define CGUs, paragraph 72 of HKAS 36 stipulates that:

Cash-generating units shall be identified consistently from period to period for the same assets or types of assets, unless a change is justified.

Hong Kong standard setters provided a variety of examples demonstrating how to identify CGUs, hoping to assist reporting firms in being fully compliant with the accounting standard of goodwill impairment. However, as analysed above, identifying CGUs within an entity is arbitrary and depends on the discretion of management. So it is not easy for standard setters or auditors to evaluate which is right or wrong in identifying CGUs in the annual reports of reporting firms. The high levels of non-compliance and poor disclosure quality bearing on goodwill impairment testing, especially in identifying CGUs for listed firms in countries such as Australia, Malaysia, Singapore, New Zealand and European countries, have also challenged Hong Kong reporting firms in identifying CGUs under the requirements of HKAS 36, especially in the early years of transition from the indigenous accounting framework to IFRS.

3.3.2. Allocating Goodwill to Cash Generating Units

In a business combination, one of the assets that may be recorded by a firm is goodwill. HKAS 36 includes specific technical requirements for goodwill accounting and how its existence affects the allocation of impairment charges across the assets of a CGU.

Acquired goodwill is recognised as an asset in the consolidated balance sheet, and is the difference between the cost of combination and the net fair value of the identifiable assets, liabilities and contingent liabilities acquired. In other words, goodwill consists of all assets that cannot be individually identified or separately recognised in a business combination.

According to Alfredson *et al.* (2005), goodwill, being an accumulation of assets, may contain benefits arising from labour relations, effective advertising campaigns, or from unrecognised intangibles that cannot be reliably identified. The assets constituting goodwill increase the wealth of a business and add to the expected future cash flows of a firm. However, the cash flows associated with the specific assets in goodwill cannot be reliably determined or the cash flows are obtained in association with other assets. So it is impossible to estimate fair value less costs to sell for goodwill or identify cash flows that relate specifically to goodwill.

Goodwill does not generate cash flows independently of other assets or groups of assets, and often contributes to the cash flows of multiple CGUs. Therefore, goodwill is tested for impairment by being allocated to CGUs or groups of CGUs. Paragraph 80 of HKAS 36 requires that:

For purpose of impairment testing, goodwill acquired in a business combination shall, from the acquisition date, be allocated to each of the acquirer's cash-generating units, or groups of cash-generating units, that are expected to benefit from the synergies of the combination ...

When deciding which CGUs should have goodwill allocated to them, consideration should be given to the level at which goodwill is monitored by management for the purpose of impairment testing. Goodwill should be allocated and tested for impairment at the lowest level at which it is monitored for internal reporting purposes that reflects the way an entity manages its operations (paragraph 82). This level could be a single CGU or a group of CGUs, provided that the group of CGUs is not larger than a „segment“ as described in accordance with HKAS 14 *Segment Reporting*. This is because HKAS 14 requires the determination of business and geographical segments based on areas that are subject to various risks and return, and the internal financial reporting system within the firm is used as a basis for determining these segments.

The standard setters considered arguments and rejected impairment testing of goodwill at the level of the entity itself, which is reflected in paragraph BC 139 of the Basis for Conclusions. There is the important link between the level at which goodwill is tested for impairment and the level of internal reporting reflecting the management and reporting of goodwill that occurs within the entity itself.

For the goodwill impairment testing process, goodwill acquired in a business combination should be allocated to CGUs or groups of CGUs that are expected to benefit from business combinations. However, not all reporting firms fulfil the allocation of goodwill to CGUs or groups of CGUs before the annual period. In this case, paragraph 84 of HKAS 36 states that:

If the initial allocation of goodwill acquired in a business combination cannot be completed before the end of the annual period in which the business combination is effected, that initial allocation shall be completed before the end of the first annual period beginning after the acquisition date.

The reason why the period for completing the initial allocation of goodwill may differ from the period for completing the initial accounting for a business combination is that allocation might not be able to be performed until after the initial accounting for the combination is complete. This is because the cost of the combination or fair values at the acquisition date and the amount of goodwill acquired would not be finalised until the initial accounting for the combination.

In situations where a portion of a CGU containing goodwill is disposed of , goodwill is treated under paragraph 86 as follows:

If goodwill has been allocated to a CGU and the entity disposes of an operation within that unit, the goodwill associated with the operation disposed of shall be:

(a) included in the carrying amount of the operation when determining the gain or loss on disposal; and

(b) measured on the basis of the relative values of the operation disposed of and the portion of the cash-generating unit retained, unless the entity can demonstrate that some other method better reflects the goodwill associated with the operation disposed of.

As to recognising the reporting structure from year to year that changes the composition of CGUs to which goodwill has been allocated, goodwill should be reallocated to the CGU as specified in paragraph 87:

If an entity reorganizes its reporting structure in a way that changes the composition of one or more CGUs to which goodwill has been allocated, the goodwill shall be reallocated to the units affected. This reallocation shall be performed using a relative value approach similar to that used when an entity disposes of an operation within a CGU, unless the entity can demonstrate that some other method better reflects the goodwill associated with reorganized units.

Thus, allocation of goodwill to defined CGUs or groups of CGUs represents a big challenge for financial statement preparers and continues to be debated in the research. There is also much room for management to have its own interpretations subjective judgement and bias when conducting impairment testing, hence the reason the process is often abused. As a result, incorrect allocation of goodwill to defined CGUs directly affects the results of impairment loss in goodwill impairment testing.

3.3.3. Measuring Recoverable Amount of Cash Generating Units

A firm's assets are normally recorded at cost at the time they are purchased. Subsequently, the firm may revalue their assets as time goes by to reflect their fair values as shown in the financial statements. If there is a decline in the asset values, i.e. the assets are impaired, the carrying amount of assets should be written down to their recoverable amounts.

The standard's objective is to ensure that assets are carried at no more than the amounts expected to be recovered through the use or sale of the assets. If an asset or CGU is carried at more than its recoverable amount, it should be impaired and the impairment charge should be recognised in the profit and loss account. The carrying amount of an asset is easy to determine, and is the amount at which an asset is recognised after deducting any accumulated depreciation (amortisation) and accumulated losses thereon. The book value of a CGU consists of the sum of the book values of individual assets in that group after deducting accumulated depreciation and accumulated losses.

To estimate the recoverable amount of CGU assets, four alternatives, namely, the sum of undiscounted future cash flows, the asset's fair value, the asset's value in use, and the higher of the asset's net selling price and value in use, were proposed (BCZ 10 of Basis for Conclusions).

The first alternative, the sum of undiscounted future cash flows, was rejected because if future cash flows are not discounted, two assets giving rise to cash flows of the same amount at different times would have the same recoverable amount. Measurements that consider the time value of money are more relevant to financial statement users. Moreover, reporting firms were already familiar with the use of discounting techniques and this technique was already required for other areas of financial statements (BCZ 13 of Basis for Conclusions).

The second alternative, the asset's fair value, was also rejected because no preference is given to the market's expectation of the recoverable amount of an asset over a reasonable estimate conducted by the individual entity that owns the asset. In addition, market values are a way to estimate fair value only if they reflect the fact that both parties are willing to enter into a transaction. But the recoverable amount

should also consider an asset's service potential from its use by the entity (BCZ 17 of Basis for Conclusions).

The third alternative, the asset's value in use, was not accepted because if an asset's net selling price is higher than its value in use, management can dispose of or keep the asset. If the asset is disposed of, it is logical to base the recoverable amount on the asset's net selling price to avoid recognising an impairment loss. If the asset is kept, the extra loss properly falls in the subsequent period (BCZ 22 of Basis for Conclusions).

The fourth alternative, the higher of the asset's net selling price and value in use, was accepted as the way to measure the recoverable amount because measurement of the recoverable amount of an asset should reflect the likely behaviour of a rational management. Furthermore, no preference should be given to the market's expectation of the recoverable amount of an asset (basis for net selling price) over a reasonable estimate carried out by the individual entity which owns the asset (basis for value in use) and vice versa (BCZ 23 of Basis for Conclusions).

From the definition of recoverable amount, there are two possible amounts against which the carrying amount can be tested for impairment, i.e. fair value less costs to sell and value in use. The former method relies on market-based evidence and the latter method relies on a discounted cash flow model. To measure impairment, an asset or a CGU's carrying amount is compared with its recoverable amount, which is shown in Figure 3.1.

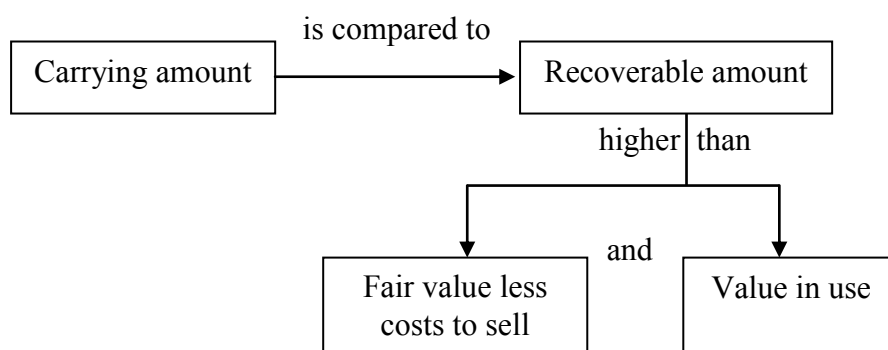


Figure 3.1. The impairment test

(Source: Adapted from E&Y [2004], p. 2)

The recoverable amount is determined for individual assets. However, if an asset does not produce cash inflows that are largely independent of those from others, the recoverable amount should be estimated for a CGU to which the asset belongs.

However, an entity does not necessarily determine the recoverable amount of CGU assets at any cost. It is only estimated in case any indications of internal and external sources of information exist. Paragraph 12 of HKAS 36 prescribes indications of internal and external sources of information, as below:

Internal sources of information comprise: (i) available evidence of obsolescence or physical damage of an asset; (ii) significant changes with an adverse effect on the entity that have occurred during the period or are expected to occur in the near future, for example, the asset becomes idle; (iii) available evidence from internal reporting indicates that the economic performance of an asset is or will be worse than expected.

External sources of information consist of: (i) significant and greater than expected decline of an asset's market value; (ii) significant changes with an adverse effect on the entity that have taken place during the period or will take place in the near future,

in the technological, market, economic or legal environment in which the entity operates; (iii) increase of market interest rates or other market rates of return on investment that affects discount rate used and decreases the asset's recoverable amount materially; (iv) the higher value between the carrying amount of the net assets and its market capitalisation.

In order to ascertain the recoverable amount, both fair value less costs to sell and value in use may be needed to measure and then determine which of the two is higher. However, it is not necessary to determine both an asset's fair value less costs to sell and value in use. Paragraph 19 of HKAS 36 states that:

If either of these amounts exceeds the asset's carrying amount, the asset is not impaired and it is not necessary to estimate the other amount.

However, if the information needed to estimate value in use is available, this may not always be the case for fair value less costs to sell. If it is impossible to measure fair value less costs to sell with sufficient reliability for impairment testing purposes, the recoverable amount of CGU assets needs to be relied on its value in use (E&Y, 2007).

The key issue for determining the existence of impairment loss depends on estimating the recoverability of an asset or a CGU. Based on the defined recoverable amount, fair value less costs to sell and value in use are used for estimating the recoverable amount of CGU assets.

3.3.3.1. Fair Value Less Costs to Sell

A fair value oriented paradigm gradually replaced historical cost-based accounting and reporting frameworks. Today, fair value-based measurements and disclosures are

becoming increasingly prevalent in financial accounting frameworks, including asset or liabilities on a time basis, for instance, impairment testing of goodwill (Carlin *et al.*, 2008).

Paragraph 6 of HKAS 36 defines “fair value less costs to sell” as the amount that could be obtained from the sale of an asset or CGU in an arm’s length transaction between knowledgeable, willing parties, less costs of disposal. For obtaining fair value less costs to sell of an asset or a CGU, HKAS 36 sets out the hierarchy of evidence that is required in paragraphs 25 to 29.

The main characteristic of fair value estimates is based on market-based events. Under the requirement of paragraph 25, the best signal of estimating the reliable amount of an asset’s fair value, the first part of fair value less costs to sell, is to rely on a price in a binding sale agreement, and then adjust for incremental costs.

In cases where there is no binding sale agreement but an asset is traded in an active market, some foundations are given for measuring an asset’s fair value less costs to sell. In this case, the current bid price is the best surrogate for market price. However, the current bid price is not always available in the market. So in this situation, one reference for market price is the price of the most recent transaction, provided that there has not been a substantial change in economic circumstances between transaction date and the dates at which the determination is made (paragraph 26 of HKAS 36).

Fair value less costs to sell of an asset or CGU is based on the best information that reflects the amount that an entity could obtain from the disposal of the asset or CGU in an arm’s length transaction between knowledgeable, willing parties, after deducting

the costs of disposal if there is no binding sale agreement or active market for the asset or CGU (paragraph 27 of HKAS 36).

In estimating this amount, an entity is required to consider the “outcome of recent transactions for similar assets within the same industry”. According to (E&Y, 2007), recent transactions should be relevant if they meet some following conditions:

- (i) The recent transaction should be in the same industry;
- (ii) The assets concerned must be regarded to be significantly the same as their nature and conditions;
- (iii) The economic environment of the entity must be similar to the environment in which the previous sales happened.

With regard to the costs of disposal, the second part of fair value less costs to sell, paragraph 28 of HKAS 36, provides some examples of costs of disposal such as legal costs, stamp duty and similar transaction taxes, costs of moving the asset, and direct incremental costs to bring the asset into condition for sale. The costs should be directly related to either the sale of the asset or getting the asset ready for sale. Any costs arising subsequent to the sale of the asset, even if they arise as a result of the sale, are not recorded as costs of disposal.

3.3.3.2. Value in Use

Logical thinking and deduction as it pertains to the impairment concept is based on the principle of “value to the business” (Hui & Ng, 2006). Value to the business is the lower of an asset’s carrying amount and its recoverable amount. The carrying amount

is calculated as the amount at which an asset is recognised after deducting any accumulated depreciation (amortisation) and accumulated impairment charges. The recoverable amount is defined as the higher of an asset's fair value less costs to sell and its value in use.

While the requirements of the accounting standard on determining value in use are somewhat prescriptive, their application gives rise to many valuation issues. Calculating an asset or CGU's value in use involves estimating the future cash flows expected to be derived from an asset or CGU and discounting those cash flows to their present values. The key practical difficulty in such calculations is choosing an appropriate discount rate and subjectivity associated with providing assumptions about the future, such as long-term growth rates (E&Y, 2007). As defined in paragraph 6 of HKAS 36, value in use is the present value of future cash flows expected to be derived from an asset or CGU.

Five elements should exist in the determination of value in use, as noted in paragraph 30 of HKAS 36:

- (a) an estimate of the future cash flows the entity expects to derive from the asset;*
- (b) expectations about possible variation in the amount or timing of those future cash flows;*
- (c) the time value of money, represented by the current market risk-free rate of interest;*
- (d) the price for bearing the uncertainty inherent in the asset; and*

(e) other factors, such as illiquidity, that market participants would reflect in pricing the future cash flows the entity expects to derive from the asset.

Estimation of value in use requires the application of the discounted cash flow (DCF) model, which necessitates a view on the part of reporting firms on factors such as timing of future cash flows, discount rates, long-term growth rates and forecast periods. According to Fernandez (2007), the DCF model is based on the estimation of future cash flows and then discounting them at a discount rate after considering the risk of financing sources used to acquire those cash flows. The DCF model is simpler to work with since it already explicitly incorporates important valuation parameters such as investment and risk (Kaplan & Ruback, 1995). Damodaran (2002) concluded that the DCF model focuses on the right value drivers which are incremental costs, cash flow timing and risk. Therefore, the DCF model is regarded as the suitable method to discount future cash flows to the present value (value in use), as below.

$$PV = \frac{FCF_1}{(1+i)^1} + \frac{FCF_2}{(1+i)^2} + \frac{FCF_3}{(1+i)^3} + \dots + \frac{FCF_n}{(1+i)^n} + \frac{TV}{(1+i)^n}$$

In which:

$$TV = \frac{FCF_n * (1 + g)}{(i - g)}$$

Where:

PV = Present Value

FCF₁, FCF₂, ... FCF_n = Future Cash Flows

i = Discount Rate (the returned required by shareholders)

n = Forecast Period

TV = Terminal Value

g = Long-term Growth Rate

Source: Myers & Brealey (2003, p. 77)

As a result, in order to ascertain data of value in use (present value), variables of the DCF model such as future cash flows, discount rates, long-term growth rates and forecast periods should be estimated. Guidelines on determining each variable in the DCF model are presented below.

Future Cash Flows

In the DCF model, a variable of future cash flows should be measured and then discounted to the present value through variables such as discount rate, forecast period and long-term growth rate.

Paragraph 39 of the standard provides a detailed composition of future cash flows, including projections of cash inflows, projections of cash outflows and net cash flows (if any). First, cash inflows are projected from the continued use of the asset or group of assets over its expected useful life. Second, cash outflow projections are those necessarily incurred to produce cash inflows from continued use of the asset (including cash outflows to prepare the asset for use), and can be directly related or allocated, on a reasonable and consistent basis, to the asset or group of assets. Third, the estimate of net cash flows to be received or paid for by the disposal of an asset at the end of its useful life should be the amount that an entity expects to obtain from the disposal of the asset after deducting the estimated costs of disposal.

One important thing should be noted that projected cash flows should be estimated for the asset or group of assets in its current condition (paragraph 44). Where there is an expected restructuring in future periods or where there are possibilities for enhancing or improving the asset or CGU's performance in subsequent periods, estimates of future cash flows will not take these possible events into consideration. Cash flows

relating to financing activities or income tax are not comprised in the calculations of future cash flows.

Management should use appropriate bases for projecting future cash flows. To this end, some important guidelines are provided below.

First, cash flow projections should be based on reasonable and supportable assumptions that reflect management's best estimate of the range of economic conditions that will exist over the remaining useful life of the asset. These should be tempered by management's success in the past in forecasting future cash flows accurately and an analysis of past cash flows (Alfredson *et al.*, 2005). Where available external evidence exists, this should be given greater weight than simple reliance on management's expectations.

Second, cash flow projections should be based on the most recent financial budgets or forecasts that have been approved by management. Management should ensure that the assumptions used in estimating the recoverable amount are based on past actual outcomes, provided the effects of subsequent events or circumstances did not exist when those actual cash flows were generated. These projections should cover a maximum period of five years unless a longer period can be justified.

Third, for years beyond the period covered, reliance should be placed on a steady or declining growth rate, unless an increasing rate can be shown. However, this growth rate should not be higher than the long-term growth rate for the products, industries or country in which the entity operates.

Discount Rate

The discount rate selection decision is entirely important from the wording of HKAS 36. On any reading of HKAS 36, it is clear that the discount rates used for the purposes of transforming CGU future cash flow estimates to their present values are required to associate with the risk characteristics of each CGU. In addition, discount rate selection represents a central point in deciding the magnitude of impairment expenses.

Moreover, discounting future cash flows should reflect the time value of money and the risks specific to the asset for which the future cash flow estimates have not been adjusted. In the BCZ 53 of Basis for Conclusions, for the purpose of discounting future cash flows, a discount rate based on a historical rate and a risk free rate was rejected. The discounted present value of cash flows should be a pre-tax rate (paragraph 55). The discount rate has to incorporate a risk assessment that is asset-specific (Finch, 2008). The discount rate is the return that investors would require if they were to choose an investment that would produce cash flows of amounts, timing and risk profiles equivalent to those that the entity expects to derive from the asset or CGU. Present values that are discounted from future cash flows can be highly sensitive even to small variations in discount rates (Carlin *et al.*, 2010b).

In principle, value in use should include the present value of the future tax cash flows that would result if the tax base of the asset or CGU were equal to its value in use. However, it may be burdensome to estimate the effect of the future tax cash flows in order to avoid double accounting and an iterative and possibly complex computation (BCZ 284 of Basis for Conclusions). In addition, BCZ 285 of the Basis for Conclusions emphasizes that the pre-tax discount rate is not always the post-tax discount rate grossed up by a standard rate of tax. Therefore the standard setters

required an entity to determine value in use by using pre-tax future cash flows and hence, a pre-tax discount rate.

According to paragraph 56 of HKAS 36, the rate may be estimated from the rate in the current market transactions for similar assets or from the weighted average cost of capital (WACC) if a listed entity has a single asset or a portfolio of assets similar in terms of service potential and risks to the assets under review.

In addition, paragraph 3 of appendix A shows that a general principle in choosing a discount rate is that interest rates used to discount cash flows should reflect assumptions that are consistent with those inherent in the estimated cash flows. Otherwise, the effect of assumptions will lead to double accounting.

Paragraph A19 also emphasizes that the way in which the entity is financed as a whole and the way in which the entity has financed the acquisition of the asset, should not affect the estimation of the discount rate.

In cases where an asset-specific rate is not directly available from the market, an entity is supposed to use a surrogate to estimate the discount rate. Thus the entity may consider rates such as its WACC, incremental borrowing rate and other market borrowing rates. The entity should consider whether the WACC or incremental borrowing rate needs to be adjusted in any way to show that the asset or CGU carries with it specific risks that differ from the risks encountered by the entity as a whole (E&Y, 2007).

These rates, however, should be adjusted to reflect the way the market would evaluate the specific risks associated with the asset's estimated cash flows, and exclude risks that are not relevant to the asset's estimated cash flows or for which the estimated

cash flows have been adjusted (paragraph A 18). In addition, the rate should reflect risks affecting the entity with consideration being given to risks such as country risk, currency risk and price risk.

One important aspect should be considered in determining discount rate is that discount rate is based on a pre-tax rate. When the basis used to determine discount rate is post-tax, the basis should be adjusted to reflect a pre-tax rate.

Long-term Growth Rate

In the DCF model, long-term growth rate informs a signal of the degree of optimism or pessimism of the business. It is used to estimate the terminal value of an asset or a CGU after the forecast period.

Terminal value refers to the net present value of all of the forecast free cash flows that are expected to be produced by the assets or CGU after the explicit forecast period. It is also the residual value at the end of a projection period under the DCF business valuation method.

In order to have terminal value data and then discount it to the present value, a variable of long-term growth rate in the DCF model needs to be determined. HKAS 36 stipulates that the terminal value should be measured by extrapolating cash flow projections beyond the forecast period using a steady or declining growth rate for subsequent years, unless an increasing rate can be justified by meeting objective information about patterns over a product or industry lifecycle.

In addition, the long-term growth rate employed to estimate terminal value cannot exceed the long-term average growth rate for the products, industries, or the country

or countries in which the entity operates, or for the market in which the asset or CGU is used, unless a higher rate can be justified. If appropriate, the long-term growth rate is zero or negative.

The calculation of terminal value depends on the useful life profile of the asset or CGU assets. When CGU has a finite life, any net cash flows that are expected on disposal at the end of its useful life should be put in the value in use calculation. When CGU has an indefinite life, terminal value is determined by observing the forecast maintainable cash flows that are expected to be produced by the CGU in the final year of the forecast period.

Forecast Period

Forecast period is the time period for which the individual yearly cash flows are put in the DCF model. The duration of cash flow forecasts has crucial implications for the reliability of the results of net present value (Lonergan, 2007). Based on each year in the period of forecast and discount rate, the yearly future cash flows are discounted to their present values.

In the eyes of standard setters, detailed, explicit and reliable financial budgets or forecasts of future cash flows for periods longer than five years are generally unavailable. In addition, a detailed analysis of future activities and operations are rarely longer than five years even though this issue is still debatable. Thus, paragraph 35 of HKAS 36 requires that management's estimates of future cash flows be based on the most recent forecasts for a maximum five-year period.

However, management may use cash flow projections based on financial budgets or forecasts over a period longer than five years if these projections are reliable and the

entity can demonstrate its ability, based on past experience, to forecast cash flows accurately over that longer period.

3.3.4. Determining Impairment Loss for Goodwill

Goodwill acquired in a business combination is always assessed on a CGU basis because it is accepted as an asset but it does not generate cash flows independently of other assets or groups of assets.

Under the requirement of paragraph 90, a CGU that has goodwill allocated to it should be tested annually or more frequently if there is an indication that the unit may be impaired. In the impairment testing process, this involves comparing the carrying amount of CGU assets, including goodwill, with its recoverable amount.

Where the CGU recoverable amount estimate exceeds its carrying amount, there is no impairment charge and no impairment loss of goodwill. In this situation, the goodwill balance remains unchanged in the consolidated financial statements. However, according to Alfredson *et al.*, (2005), this test is not a robust test of the goodwill amount recorded by the entity, because under this test, goodwill is protected against impairment by internally generated goodwill, unrecognized identifiable net assets and excess value over the carrying amount of recognized assets.

Standard setters admit that the above test provides a cushion against recognizing impairment losses for goodwill. Paragraph BC 135 of the Basis for Conclusions notes that the carrying amount of goodwill will always be shielded from impairment by internally generated goodwill. Therefore, the objective of the goodwill impairment test could at best be to ensure that the carrying amount of goodwill is recoverable

from future cash flows that are expected to be generated by both acquired and internally generated goodwill.

If the CGU recoverable amount estimate is lower than its book value, impairment loss is said to have occurred. Measurement of impairment loss is based on the assumption that an entity will choose to recover the carrying amount of an asset or CGU in the most beneficial way. This impairment charge is reflected in the income statement and recognized under the requirements of paragraph 104 of HKAS 36, as below:

The impairment losses shall be allocated to reduce the carrying amount of the assets of the unit (group of units) in the following order:

(a) first, to reduce the carrying amount of any goodwill allocated to the cash-generating unit (group of units); and

(b) then, to the other assets of the unit (group of units) pro rata on the basis of the carrying amount of each asset in the unit (group of units).

These reductions in carrying amounts shall be treated as impairment losses on individual assets and recognized in accordance with paragraph 60.

There has been much controversy over the process of goodwill impairment testing. Some members dissented on the issue of HKAS 36, primarily over aspects of the regime, namely, that it does not determine whether goodwill has been impaired or not. In arbitrarily allocating the impairment charge first to goodwill with the assumption that goodwill has been impaired, there is no subsequent test to determine whether goodwill has been impaired or whether assets in the CGU have been impaired.

Figure 3.2 illustrates the goodwill impairment testing process, in which goodwill impairment loss is shown.

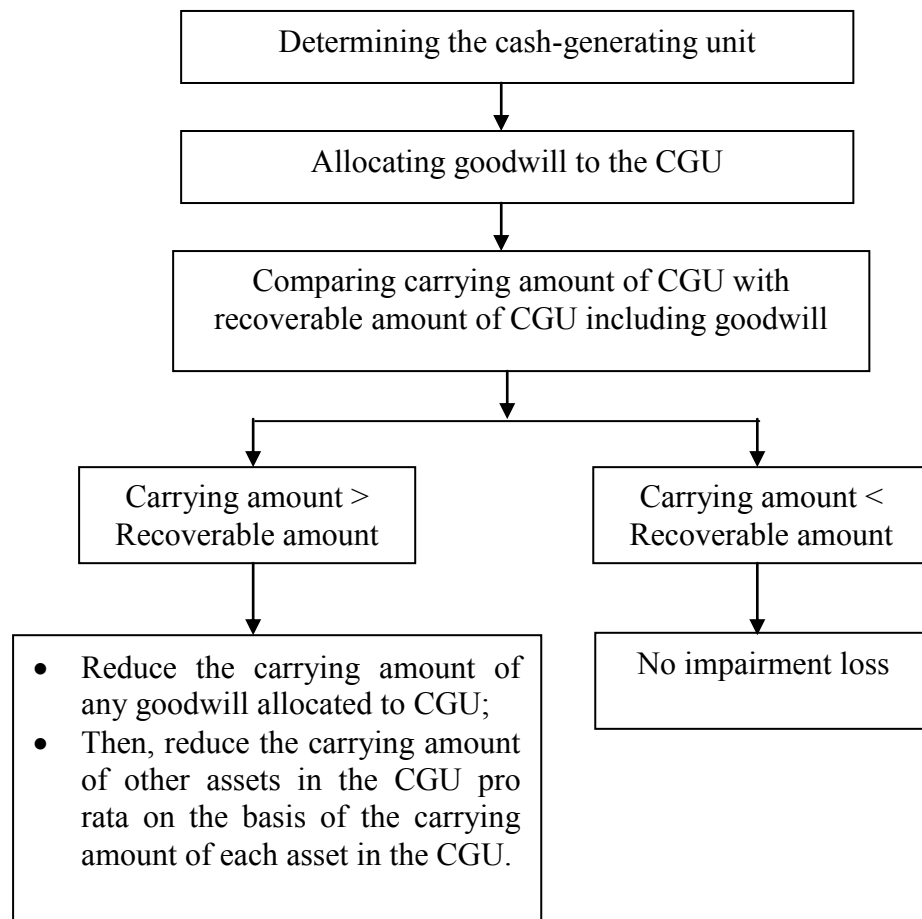


Figure 3.2. Goodwill Impairment Testing Process

(Adapted from E&Y, 2004)

3.3.5. Timing of Impairment Test for Goodwill

Under the technical requirements of the goodwill accounting standard, a firm is required to review all assets within its scope for potential impairment at least annually. According to paragraph 10 (b), the recoverability of goodwill is required to be determined annually irrespective of whether there is an indicator of impairment and is in accordance with paragraphs 80-99 of HKAS 36.

It is not necessary for the test to occur at the end of the reporting period. Paragraph 96 stipulates that impairment testing may be carried out at any time of the year, provided it is conducted at the same time every year. As explained in BC 171 of the Basis for Conclusions, this measure was performed as a means of reducing the costs of applying the impairment test. Nevertheless, if a business combination has occurred in the current period, goodwill acquired has been allocated to one or more CGUs, and all CGUs to which goodwill has been allocated must be tested for impairment before the end of that period.

Also, under the requirement of paragraph 96 of HKAS 36, it is unnecessary for all CGUs to be tested for impairment at the same time and different CGUs to which goodwill has been allocated may be tested for impairment at different times.

According to paragraph 98 of HKAS 36, if there is an indication of impairment of a CGU within a group of CGUs containing the goodwill, an entity tests the CGU for impairment first and records any impairment charges for that unit, before testing for impairment the group of CGUs to which the goodwill is allocated.

One of the reasons for requiring annual testing for goodwill, apart from the uncertainty of determining this asset, is associated with the concept of depreciation. As defined, depreciation is a process of allocation. Hence, to have an asset such as goodwill permanently on the records without allocating it to an accounting period seems to be a departure from the process of allocation and a move towards the valuation concept. Standard setters believe that, as set out in BC 121 of the Basis for Conclusions, non-amortisation of goodwill increases the reliance on impairment reviews of that asset to ensure that its carrying amount is no higher than its recoverable amount (Alfredson *et al.*, 2005).

3.3.6. Reversal of Impairment Loss for Goodwill

An impairment loss is recognised in case an asset or a CGU carrying amount is higher than its recoverable amount. Subsequent to impairment loss occurring, in some situations the recoverable amount of an asset or CGU assets increases, and consideration should be given to a reversal of a past impairment charge.

Paragraph 124 of HKAS 36 states that an impairment charge recognised for goodwill will not be reversed in a subsequent period. The reasons for this resolution are shown in paragraphs BC 187-191 of the Basis for Conclusions.

The key principle derived from accounting for goodwill in the reversal of impairment charges is that which is defined in the IAS 38 *Intangible Assets*, i.e. the recognition of internally generated goodwill is prohibited. If reversal of impairment loss for goodwill is permitted, a firm needs to establish the extent to which a subsequent increase in the recoverable amount of goodwill is attributable to the recovery of the acquired goodwill within the CGU, rather than an increase in goodwill being internally generated within the unit.

Based on the nature of goodwill, it is impossible to determine how much of any goodwill existing in a firm belongs to acquired goodwill or internally generated goodwill. Permitting impairment reversal to increase the carrying amount of goodwill is potentially permitting the recognition of internally generated goodwill. This has been described as „back door“ capitalisation of internally generated goodwill, hence the prohibition in HKAS 36.

3.3.7. Disclosures

HKAS 36 does not produce big changes on the balance sheet and income statement, but it requires a reporting firm to present huge disclosures in the note-form of consolidated financial statements, such as disclosures by class of assets, segment information, CGU, and disclosures of detailed information about estimates used to determine the recoverable amount of CGU assets containing goodwill or intangible assets with indefinite useful lives.

Paragraph 133 requires disclosure in relation to any goodwill acquired in a business combination during the period that has not been allocated to a CGU (or group of CGUs) at the reporting date, in accordance with paragraph 84. In particular, the amount of unallocated goodwill and the reasons why that amount has not been allocated to the defined CGUs in an entity should be shown.

The calculation of the recoverable amount is based on subjective assumptions and estimates relating to future cash flows, so an entity is required to provide detailed disclosures pertaining to the estimation of the recoverable amount. Paragraph 132 encourages the entity to present key assumptions employed to estimate the recoverable amount of assets or CGU assets during the period.

Paragraph 134 of HKAS 36 requires disclosures about estimates employed to determine the recoverable amount of CGU assets when goodwill is included in the carrying amount of CGU assets, and the carrying amount of goodwill allocated to that CGU is significant in comparison with the entity's total carrying amount of goodwill. Some information relating to the process of goodwill impairment should be disclosed in the notes to the accounts as prescribed in paragraph 134 below:

(a) the carrying amount of goodwill allocated to the unit (group of units).

(b) the carrying amount of intangible assets with indefinite useful lives allocated to the unit (group of units).

(c) the basis on which the unit's (group of units') recoverable amount has been determined (i.e. value in use or fair value less costs to sell).

Several specific and detailed disclosures are called for in the event that value in use is the basis employed for the estimation of the recoverable amount. These appear designed to help financial statement users evaluate the robustness of the DCF model used to estimate the recoverable amount, and are included in paragraph 134 (d):

(i) a description of each key assumption on which management has based its cash flow projections for the period covered by the most recent budgets/forecasts. Key assumptions are those to which the unit's (group of units') recoverable amount is most sensitive;

(ii) a description of management's approach to determining the value(s) assigned to each key assumption, whether those value(s) reflect past experience or, if appropriate, are consistent with external sources of information, and, if not, how and why they differ from past experience or external sources of information;

(iii) the period over which management has projected cash flows based on financial budgets/forecasts approved by management and, when a period greater than five years is used for a cash-generating unit (group of units), an explanation of why that longer period is justified;

- (iv) *the growth rate used to extrapolate cash flow projections beyond the period covered by the most recent budgets/forecasts, and the justification for using any growth rate that exceeds the long-term average growth rate for the products, industries, or country or countries in which the entity operates, or for the market to which the unit (group of units) is dedicated;*
- (v) *the discount rate(s) applied to the cash flow projections.*

On the contrary from abundant disclosure requirements of value in use as the benchmark for goodwill impairment testing, HKAS 36 requires limited disclosures of the assumptions and processes adopted by an entity that has chosen fair value less costs to sell. Paragraph 134 (e) gives details of this disclosure:

(e) if the unit's (group of units') recoverable amount is based on fair value less costs to sell, the methodology used to determine fair value less costs to sell. If fair value less costs to sell is not determined using an observable market price for the unit (group of units), the following information shall also be disclosed:

- (i) *a description of each key assumption on which management has based its determination of fair value less costs to sell. Key assumptions are those to which the unit's (group of units') recoverable amount is most sensitive.*
- (ii) *a description of management's approach to determining the value(s) assigned to each key assumption, whether those value(s) reflect past experience or, if appropriate, are consistent with external sources of*

information, and, if not, how and why they differ from past experience or external sources of information.

3.4. Conclusion

Goodwill acquired in a business combination is recorded as an asset in the consolidated financial statements. Over time and across jurisdictions, goodwill has been treated in different ways including keeping it unchanged in the balance sheet, writing it off directly to reserves or to the income statement, or amortising it over its useful life. Not all treatments relating to goodwill produced difficulties for management and financial statement preparers or financial report users in testing the robustness of the goodwill treatments.

However, in order to ensure that all assets are carried at no more than their recoverable amounts, goodwill has to be tested for impairment annually under the standard requirements. Because of particularly technically challenging elements of the standard, the goodwill impairment testing process is regarded to be the most difficult issue in accounting (Haswell and Langfield-Smith, 2008) and the issue of transferring it from theory to practice is still questionable.

As a long-time colony of Britain, Hong Kong Accounting Standards were heavily influenced by United Kingdom Standards and Practices (Ball *et al.*, 2003). No reporting standard relating to goodwill existed in the legal accounting framework until March 1984. From 1984 to 2000, goodwill acquired was eliminated from the account of reserves or amortised on the straight line over its useful life. Goodwill was recorded at cost less any accumulated amortisation and accumulated impairment losses (if any) for the period from 2001 to 2004. Since then, Hong Kong has officially

moved to an IFRS reporting framework and mandated reporting firms to comply from 1 January 2005.

The big difference between the requirements of HKAS 36 and prior regulations in relation to goodwill relate to the treatments of goodwill after acquisition. This causes difficulties for management and financial statement preparers in switching from „capitalise and amortise“ to „capitalise and impair annually“ in the early years of transition. This in turn raises concerns for policy makers and external users about the levels of compliance on the part of reporting firms.

In order to determine whether goodwill is impaired, it is necessary to conduct a series of investigations including: identifying the CGUs; allocating goodwill to defined CGUs; measuring the recoverable amount of CGU assets; comparing the recoverable amount of CGU assets to its book value; defining impairment losses; and allocating impairment losses to goodwill and other assets in the CGU assets. Evidently, the implementation of goodwill impairment is based on subjective assumptions, and different assumptions produce different results. Evaluating which result is the right one poses great difficulties for financial statement users, policy makers and auditors.

According to Massoud & Raiborn (2003), determining goodwill impairment allows significant room for management to be biased and subjective. For example, to determine value in use based on the recoverable amount, management has to provide variables in the DCF model such as future cash flows, discount rates and long-term growth rates. These variables involve uncertain events in the future, so this leads to enormous challenges for financial report users in their evaluation of the robustness of goodwill impairment testing. It also raises the question of compliance levels on the part of reporting firms as well as the efficacy of the financial regulatory framework.

Applying the goodwill impairment testing regime does not produce big changes on the balance sheet and income statement, but it generates heavy burdens in disclosing financial information relating to goodwill impairment in the note-form of consolidated financial statements. However, it is said that applying the goodwill impairment testing regime provides a wide range of financial information regarding goodwill impairment to external users.

The next chapters focus on compliance, discount rate and audit quality with respect to goodwill impairment. The data collection and methodologies applied will be presented in the next chapter.

Chapter 4: Data and Research Methodology

4.1. Introduction

The review of literature on goodwill and the technical requirements of goodwill impairment in the context of Hong Kong were presented and discussed in the previous chapters. Given its uncertain conceptual foundations, it comes as no surprise that the practice of goodwill accounting has experienced substantial turmoil and change over time (Hughes, 1982).

There have been some controversial treatments relating to goodwill such as write-off directly to reserves in the year of acquisition, capitalise and not amortise, and capitalise and amortise according to different methods (Seetharaman *et al.*, 2004; Seetharaman *et al.*, 2008). These treatments mentioned above were viewed not to make difficult for financial statement preparers and users in evaluating their robustness. However, these treatments of goodwill were regarded to be improper as reduction of goodwill value was not really reflected correctly when it was consumed.

Impairment of goodwill is considered more effective than prior goodwill treatment methods, even though there has been much controversy surrounding its implementation. The application of the IFRS goodwill reporting framework is certainly highly challenging for reporting firms in the first years following implementation of IFRS. Previous studies have also investigated goodwill impairment with regard to different aspects such as compliance levels, and discount rates in other jurisdictions such as Australia and New Zealand. However, those studies only drew upon data from the first year following adoption of IFRS and the number of sample firms was limited.

In contrast to the previous literature, this study looks into the issue of goodwill impairment using a bigger sample size and longer time series in the context of Hong Kong, which is an international financial centre with strong institutional and regulatory frameworks.

Consequently, this chapter provides an overview of the data collected and methodologies employed in the conduct of this research. Descriptions of the data and collection processes are presented in section 4.2. Section 4.3 illustrates the methodology used to evaluate the levels of compliance and quality of disclosure pertaining to goodwill impairment. Methodologies for estimating discount rates are shown in section 4.4. Section 4.5 contains the methodology to measure audit quality while section 4.6 sets out some brief conclusions.

4.2. Data Description

IFRS came into effect in Hong Kong for firms with reporting periods on or after 1 January 2005. It was therefore necessary to construct the data from samples drawn from 2005 data, which was the first year in which IFRS was the default reporting regime for Hong Kong-listed firms. As this thesis has different objectives, different kinds of research samples were designed to meet these objectives. There were two phases involved in the process of building the research sample, as outlined below.

In the process of constructing the initial sample, the following steps were taken:

First, firms were required to be members of the Main Board of the Hong Kong Stock Exchange (HKEx)²⁶ as at December each year. HKEx is a leading international

²⁶ Association of Stockbrokers in Hong Kong was founded in 1894. Then it renamed into Hong Kong Stock Exchange (HKSE). On 6th March 2000, The Stock Exchange of Hong Kong, Future Exchange of Hong Kong and Hong Kong Securities Clearing merged under a single exchange of HKEx.

financial centre where shares of listed firms are traded. Through the Worldscope Datastream Database, there were 934 listed firms in 2005, 975 in 2006 and 1048 in 2007, with a total market capitalisation of \$8,113 billion, \$13,248 billion and \$20,536 billion respectively.

Second, all firms were stratified by individual market capitalisation and the 500 largest firms selected in each year for the next stage. Consequently, the market capitalisation of the 500 largest listed firms and the percentage of total market capitalisation in 2005, 2006 and 2007 were \$8,027 billion and 98.94%; \$13,131 billion and 99.11%; and \$20,242 billion and 98.56% respectively.

Third, firms having no goodwill as an element of their asset base in their consolidated financial statements were excluded from the sample. As a result, 285 listed firms in 2005, 251 in 2006 and 236 in 2007 were removed from the sample. However, 2005 was the first year that Hong Kong had shifted to an IFRS reporting framework. So a further 54 firms in 2005 were excluded for having a reporting date other than 31 December.²⁷

Consequently, the final sample comprised 161 firms in 2005, 249 in 2006 and 264 in 2007. The market capitalisation of the sample and the percentage of total market capitalisation were \$4,431 billion and 54.61% in 2005; \$8,349 billion and 63.02% in 2006; and \$12,922 billion and 62.93% in 2007.

The final sample for meeting this objective was the initial sample. Based on the different firms in different years (unmatched sample), evidence of practice of

²⁷ Recall that HKAS 36 only became mandatory for reporting periods commencing 1 January 2005. By definition, any reporting period that concluded prior to 31 December 2005 commenced prior to 1 January 2005, and therefore was not required to adopt HKAS on a mandatory basis.

compliance rates and quality of disclosure were collected to evaluate the variations over the three-year period from 2005 to 2007.

Firms listed on the Hong Kong Stock Exchange (HKEx) report in a variety of currencies, including Hong Kong dollars (\$HK), Chinese Yuan Renmibi (RMB) and US dollars (\$US). The majority of listed firms use \$HK, followed by RMB and then \$US. To allow consistent analysis, all non-\$HK data was converted into \$HK.²⁸ All items in the balance sheet were translated at exchange rates prevailing at the year end applicable to each firm included in the research sample. All items in the income statement were translated at a 12-month average exchange rate for each year sample.

To allow for industry segmentation of data, all firms were allocated to one of five industry groups comprising organisations with related principle lines of business. There sectors are: Consumer Goods & Conglomerates; Financials; Telecommunications & Services; Materials & Industrial Goods; and Utilities, Energy & Construction.

An overview of the unmatched sample is exhibited in Table 4.1, below.

The tendency of increasing goodwill balances occurred in the time series in the unmatched sample, but the average goodwill decreased in 2006 and increased in 2007. Evidently, firms in three of the five industry sectors reported increased average goodwill in 2006 in comparison with 2005, whereas firms in all five sectors reported increased average goodwill in 2007 in comparison to 2006, which is illustrated in Table 4.1. Additionally, there was no change in the ratio of goodwill as total assets in the overall sample from 2005 to 2006 (about 2.1%) but it reduced to 1.4% in 2007.

²⁸ Foreign exchange rates for this study were sourced from the OANDA database, one of the world's largest historical databases.

Table 4.1: Overview of Unmatched Sample

Sector	No. of firms (n)			Total Goodwill (\$HKD million)			Average Goodwill (\$HKD million)			Δ in Avg. Goodwill (\$HKD million)		Goodwill as % Total Assets		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	06 vs. 05	07 vs.06	2005	2006	2007
Consumer Goods & Conglomerates	48	73	77	35,191	48,127	82,982	733	659	1,078	-74	418	2.7%	2.9%	3.7%
Financials	16	24	25	265,025	315,988	332,074	16,564	13,166	13,283	-3,398	117	1.8%	1.7%	1.0%
Telecommunications & Services	47	69	62	64,515	100,844	96,022	1,373	1,462	1,549	89	87	5.5%	6.9%	5.5%
Materials & Industrial Goods	20	29	37	3,831	8,030	11,194	192	277	303	85	26	1.7%	2.3%	2.1%
Utilities, Energy & Construction	30	54	63	12,128	30,171	39,436	404	559	626	154	67	1.9%	1.7%	1.6%
Total	161	249	264	380,690	503,160	561,706	2,365	2,021	2,128	-344	107	2.1%	2.1%	1.4%

In order to evaluate whether there was an improvement in the performance of compliance levels and disclosure quality in relation to goodwill impairment testing by examining the goodwill impairment disclosures executed by listed firms in the period from 2005 to 2007 after Hong Kong's transition to IFRS, first-time adopters were included in the final sample. A first-time adopter is understood to be a firm that presents its first HKFRS and analogue IFRS financial statements or a firm that, for the first time, makes an explicit and unreserved statement that its general purpose financial statements adhere with HKFRS,²⁹ which is analogous with IFRS.

In the sample of first-time adopters, listed firms are the same in all three years after Hong Kong's adoption of IFRS (matched sample). Consequently, there were 128 listed firms that appeared in all three years from 2005 to 2007. The market capitalisation and percentage of total market capitalisation of the matched sample were \$4,358 billion and 53.7% in 2005; \$6,268 billion and 47.3% in 2006; and \$8,957 billion and 43.6% in 2007.

An overview of the matched sample is set out in Table 4.2, below.

At the date of sampling, the 128 listed firms in the matched sample included total assets valued at \$17,688, \$21,890 and \$27,764 billion, which controlled total goodwill of \$377, \$451 and \$501 billion in 2005, 2006 and 2007 respectively. It is evident in Table 4.2 that firms in four of five of the sectors represented in the matched sample reported increased average goodwill in the following years in comparison with previous years. Moreover, the ratio of goodwill to total assets in the whole sample decreased in the multi-year dataset.

²⁹ Appendix A of HKFRS 1 – *First-time Adoption of Hong Kong Financial Reporting Standards*.

Table 4.2: Overview of Matched Sample

Sector	No. of firms	Total Goodwill (\$HKD million)			Average Goodwill (\$HKD million)			Δ in Avg. Goodwill (\$HKD million)		Goodwill as % Total Assets		
	n	2005	2006	2007	2005	2006	2007	06 vs. 05	07 vs.06	2005	2006	2007
Consumer Goods & Conglomerates	36	34,554	44,283	75,124	960	1,230	2,087	270	857	2.74%	3.08%	4.24%
Financials	16	265,025	304,355	321,615	16,564	19,022	20,101	2,458	1,079	1.83%	1.69%	1.40%
Telecommunications & Services	33	62,857	87,609	83,127	1,905	2,655	2,519	750	-136	5.63%	6.57%	5.18%
Materials & Industrial Goods	18	3,792	4,022	6,546	211	223	364	13	140	1.76%	1.39%	1.59%
Utilities, Energy & Construction	25	11,631	11,216	15,339	465	449	614	-17	165	1.91%	1.45%	1.51%
Total	128	377,859	451,486	501,750	2,952	3,527	3,920	575	393	2.14%	2.06%	1.81%

To evaluate the variance of discount rates in the first three years after Hong Kong's implementation of IFRS by comparing the single „whole of firm“ discount rates disclosed by listed firms with independently estimated „whole of firm“ discount rates, some further steps were conducted.

First, listed firms that employed methods other than value in use for estimating the recoverable amount of CGU assets and failed to disclose the method employed were excluded from the final sample of discount rate. For firms employing fair value less costs to sell, there were no discount rates required to be disclosed so comparing observed discount rates and independently generated discount rates was impossible. For firms employing a combination of fair value and value in use, no single discount rate applicable to the whole of their business was disclosed. For listed firms that failed to report the method employed for determining the CGU recoverable amount, no data of discount rates were obtained.

As a result, listed firms that adopted value in use and used a single firm-wide discount rate for the purpose of goodwill impairment testing were chosen for the final discount rate sample. Thus, the listed firms that employed methods other than single discount rates were excluded from the final discount rate sample.

The estimation of independently generated discount rates for firms that adopt multiple explicit discount rates is more complicated owing to the need to determine the risk level for each CGU rather than for the whole firm. For the firm employing a range of discount rates, it is difficult to determine the appropriate benchmark or range of values against which the actual discount rate would be compared. For the firm providing no effective disclosure, it is impossible to compare observed discount rates and independently estimated discount rates.

One firm, Foxconn International Holding, was eliminated from the 2005 sample because it had a very low beta of -65.396, substantially lower than the other beta values in the dataset. Including this firm would have had a dramatic effect on the overall outcomes of estimated discount rates. This case, the outlier, was checked through Scatterplot, Histogram and Boxplot graphs and was excluded from the final sample so as not to distort the results of the study.

Consequently, the final discount rate sample consists of 85 listed firms in 2005, 142 in 2006 and 161 in 2007. A summary of the final sample selection is illustrated in Table 4.3. Details of the research sample of discount rate, stratified by industry sector, are set out in Table 4.4.

Table 4.3: Summary of Final Sample Selection of Discount Rate

No.	Description	Number of firms		
		2005	2006	2007
1	Firms in the Main Board of HKEx	934	975	1,048
2	500 largest market capitalisation firms	500	500	500
	Exclusion			
3	Firms with no goodwill balances	285	251	236
4	Year end other than 31 December	54	n/a	n/a
5	Firms adopted approach other than value in use	29	36	30
	+ Firms employed fair value less costs to sell	3	6	8
	+ Firms employed mixed method	5	10	7
	+ Firms failed to disclose method employed	21	20	15
6	Firms chose method other than single discount rate	46	71	73
	+ Firms selected multiple discount rates	13	23	28
	+ Firms selected range of discount rates	8	14	18
	+ Firms provided no effective discount rate disclosure	25	34	27
7	Outlier	1	-	-
	Final sample	85	142	161
	(Firms employed value in use and single discount rate)			

Table 4.4: Overview of Research Sample of Discount Rate

Sector	Number of firms			Total Assets (\$HKD million)			Total Goodwill (\$HKD million)			Goodwill as % of Total Assets		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	22	43	45	182,938	266,005	446,531	5,792	9,360	25,619	3.17%	3.52%	5.74%
Financials	8	9	11	618,056	661,158	7,964,387	5,523	9,866	10,514	0.89%	1.49%	0.13%
Telecommunications & Services	25	41	40	651,438	934,385	1,200,364	44,064	59,499	67,587	6.76%	6.37%	5.63%
Materials & Industrial Goods	12	21	29	113,191	213,365	436,905	2,801	6,588	10,504	2.47%	3.09%	2.40%
Utilities, Energy & Construction	18	28	36	238,155	447,858	794,670	4,195	7,118	11,089	1.76%	1.59%	1.40%
Total	85	142	161	1,803,778	2,522,771	10,842,857	62,375	92,432	125,313	3.46%	3.66%	1.16%

To appraise audit quality variations among the Big 4 auditors (Deloitte, Ernst & Young [E&Y], KPMG and PricewaterhouseCoopers [PWC]) by examining the level of technical compliance with disclosure requirements bearing on goodwill impairment among listed firms in the period from 2005 to 2007, the final sample of audit quality included listed firms which were audited by the Big 4 auditors.

Firms audited by non-Big 4 auditors were excluded from the final sample. Accordingly, 11 firms in 2005, 28 in 2006 and 37 in 2007 were removed from the final audit quality sample.

Consequently, the final audit quality sample comprises 150 firms in 2005, 221 in 2006 and 227 in 2007. The market capitalisation and percentage of total market capitalisation of the final sample were \$4,398 billion and 54.20% in 2005, \$8,290 billion and 62.57% in 2006, and \$12,744 billion and 62.05% in 2007.

An overview of the asset and goodwill bases of the research sample classified by industry sector and expressed in \$HK dollars is set out in Table 4.5, below.

The data shown in Table 4.5 reveal that there were increasing tendencies relating to total assets and goodwill in each industry sector and in the whole year sample as well. However, the increased rate of total assets was higher than that of total goodwill. In the whole sample of audit quality, the ratio of goodwill to total assets decreased in the period from 2005 to 2007.

Table 4.6 shows the number of firms audited by each of the Big 4 auditors and by industry sector in the period from 2005 to 2007. Clearly, the number of clients for each auditor in the multi-year dataset is uneven, with PWC dominating in each year

sample. PWC is followed by Deloitte, E&Y and KPMG, who had a minimal share in the research sample.

Key descriptive statistics of the sample firms classified by audit firm identity are illustrated in Table 4.7. On average, clients audited by E&Y were smaller, as measured by market capitalisation, than the clients of the other Big 4 auditors, especially KPMG. However, it was clients of KPMG that, on average, had the highest levels of goodwill relative to assets in all three years. Thus, the potential earnings sensitivity of KPMG clients to impairment losses on goodwill write downs was on average higher than for clients of the other Big 4 auditors included in the sample.

Table 4.5: Overview of Research Sample of Audit Quality

Sector	Number of firms			Total Assets (\$HKD million)			Total Goodwill (\$HKD million)			Goodwill as % of Total Assets		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	42	62	62	1,266,512	1,632,663	2,136,434	34,861	45,842	77,275	2.75%	2.81%	3.62%
Financials	16	24	25	14,465,076	18,193,042	33,189,161	265,025	315,988	332,074	1.83%	1.74%	1.00%
Telecommunications & Services	45	58	53	1,170,649	1,450,840	1,740,396	64,152	99,742	94,789	5.48%	6.87%	5.45%
Materials & Industrial Goods	19	27	32	217,348	353,078	522,122	3,631	7,688	10,741	1.67%	2.18%	2.06%
Utilities, Energy & Construction	28	50	55	628,532	1,790,006	2,394,735	11,647	29,847	38,055	1.85%	1.67%	1.59%
Total	150	221	227	17,748,117	23,419,629	39,982,848	379,316	499,106	552,934	2.14%	2.13%	1.38%

Table 4.6: Number of Firms Audited by Sector

Sector	Deloitte			E&Y			KPMG			PWC		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	13	22	16	13	18	21	3	5	4	13	17	21
Financials	3	6	5	3	7	7	6	8	9	4	3	4
Telecommunications & Services	8	11	13	9	10	10	5	7	6	23	30	24
Materials & Industrial Goods	9	11	11	3	7	8	2	4	7	5	5	6
Utilities, Energy & Construction	10	17	18	5	9	12	2	7	4	11	17	21
TOTAL (n)	43	67	63	33	51	58	18	31	30	56	72	76
Percentage in each year sample	28.7%	30.3%	27.8%	22.0%	23.1%	25.6%	12.0%	14.0%	13.2%	37.3%	32.6%	33.5%

Table 4.7: Descriptive Statistics of Firms by Auditor

Description	Deloitte			E&Y			KPMG			PWC		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Mean Market Capitalisation (\$ million)	8,587	11,449	19,512	5,515	8,431	15,679	143,506	163,699	241,804	22,578	28,034	44,105
Mean Assets (\$ million)	10,445	11,478	17,098	19,533	22,713	30,137	803,017	605,689	1,046,895	39,288	37,721	75,669
Mean Goodwill (\$ million)	347	416	514	187	310	493	16,461	11,828	12,828	1,105	1,233	1,409
Mean NPBT (\$ million)	910	993	6,571	707	794	1,568	16,213	15,912	20,863	2,211	2,384	3,667
GW as % assets (financials)	0.25%	5.82%	3.62%	0.14%	0.63%	0.47%	1.90%	1.76%	1.08%	0.90%	0.83%	0.08%
GW as % assets (non-financials)	3.90%	3.18%	2.91%	1.77%	2.43%	3.19%	5.08%	3.99%	3.47%	3.12%	3.48%	3.24%
GW as % assets (all sectors)	3.33%	3.62%	3.01%	0.96%	1.36%	1.64%	2.05%	1.95%	1.23%	2.81%	3.27%	1.86%
Ratio of Goodwill : NPBT	0.38:1	0.42:1	0.08:1	0.26:1	0.39:1	0.31:1	1.02:1	0.74:1	0.61:1	0.50:1	0.52:1	0.38:1

4.3. Measures of Compliance Levels and Disclosure Quality

With regard to the research questions of compliance levels and disclosure quality pertaining to goodwill impairment testing, a two-tier comparative methodology was applied. The first tier required a comparison to be conducted between practices of goodwill impairment disclosures and the requirement checklist of HKAS 36. As a result, disclosures are classified under categories of compliance and non-compliance of HKAS 36.

The second tier looked beyond the distribution of disclosures into the basic categories of „compliance“ and „non-compliance“ and realised that within the „compliance“ category of disclosure, there is a quality graduation. That is why an additional element of methodology was applied to construct multi-category disclosure quality for a more thorough understanding of goodwill impairment disclosure.

In contemplating the issues of compliance rates and disclosure quality bearing on goodwill impairment testing, some dimensions of the HKFRS goodwill reporting regime are of special interest and should be looked into under the required disclosures of HKAS 36. These are the role of CGUs and methods employed, as well as key assumptions that the recoverable amount of CGU assets has been estimated.

The first item that should be scrutinised carefully in relation to the goodwill impairment regime is CGU aggregation under the requirements of the standard. Practically, cash flows are generated largely not by individual assets but by a group of assets used together within an entity (Hui & Ng, 2006). When value in use cannot be calculated for an individual asset, it should be computed for the groups of assets that generate cash inflows that are largely independent of the cash inflows from other assets or groups of assets (CGUs).

A CGU, under HKAS 36, is defined as the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. The role of CGUs is crucial within the process of goodwill impairment testing, because the number of CGUs to which goodwill is allocated for the purpose of the impairment testing process has the capacity to affect the magnitude of impairment charges being recognised (Guler, 2007; Carlin *et al.*, 2007a; Carlin *et al.*, 2007b; Carlin *et al.*, 2008a; Carlin & Finch, 2008c; Carlin & Finch, 2009a).

In paragraph 80 of HKAS 36, for the purpose of impairment testing, goodwill acquired in a business combination is to be allocated to each CGU (or group of CGUs) that is expected to benefit from the synergies of the combination. A CGU is described as the lowest level within the entity at which goodwill is monitored for internal management purposes.

As issued in paragraph 80 of HKAS 36, in order to avoid inappropriate aggregation of CGUs, the standard states that each CGU or group of CGUs to which goodwill is allocated should not be larger than an operating segment determined in accordance with HKFRS 8.³⁰ This means that each CGU cannot be associated with more than one business segment, even though each business segment is more likely to have at least one CGU, except in some special cases, as illustrated in the following example.

A tour business is doing business in two business segments, namely, inbound and outbound tours. This firm operates a highly profitable outbound tour and an inbound tour that reveals lower average margins and far higher result volatility, under the same brand. The two business segments are independent in doing business and have independent cash inflows.

³⁰ HKAS 14 „Segment Reporting“ is applicable for annual periods beginning on or after 1 January 2005, but before 1 January 2009. HKFRS 8 „Operating Segments“ will supersede HKAS 14 and be effective on or after 1 January 2009.

Assuming that the firm defines only one CGU related to two business segments, the risk cash flow of each segment is not as clear as its separate segment. This means that the volatility inherent in the segments has been ignored. Consequently, it is more likely that a DCF valuation for estimating the recoverable amount of CGU assets applied by the travel firm will result in a greater carrying amount than if the case is treated as an individual CGU. This affects the accuracy of impairment losses in the goodwill impairment testing process.

Therefore, in order to gain insight into the CGU aggregation of the reporting firms, it is necessary to compare the number of CGUs with the number of business segments. In the evaluation of appropriate CGU aggregation it is very important to know the number of controlled entities in a company. The reason for this is that goodwill acquired in a business combination is the result of a parent company buying subsidiary entities.

It is a fact that the greater the number of controlled entities, the greater the number of CGUs if each CGU creates cash inflows independently from other assets or groups of assets. Maybe one exception is when the parent company has many subsidiaries and some subsidiaries produce goods or services for other subsidiaries in the closed cycles and those subsidiaries make cash inflows that are related to them and independent from other assets or group of assets. So, in order to gain insight into CGU aggregation, a comparison between the numbers of controlled entities and of business segments and of CGUs should be made.

To evaluate the completeness and disclosure quality pertaining to goodwill at CGU level, it is necessary to compare goodwill balances and the total goodwill allocated to CGUs. If the total amount of reported goodwill does not equal the total amount of

goodwill allocated to CGUs (without sufficient justification), the quality and disclosure completeness are judged to be low.

As analysed above, in order to evaluate whether CGU aggregation is measured properly, some issues should be inspected thoroughly, namely, CGU allocation, business segments and CGU aggregation, and controlled entities, segments, CGUs and ratio of CGUs to segments.

The second item that should be scrutinised carefully in relation to the goodwill impairment regime is the methods employed for estimating the recoverable amount of a CGU. Paragraph 6 of HKAS 36 states that the recoverable amount of an asset or a CGU is the greater of its value in use and its fair value less costs to sell (hereafter called fair value). This involves a selection of the fair value or value in use and a reporting firm is required to disclose the method employed in the note-form of the consolidated financial statements.

Fair value is understood to be the amount obtainable from the sale of an asset or a CGU in an arm's length transaction between knowledgeable and willing parties, less costs of disposal, and is determined from market-based evidence. For some actively traded assets, it may be not too difficult to get fair value to sell from public information (Hui & Ng, 2006). An active market is defined as a market in which willing buyers and sellers can normally be found at any time, and prices are available to the public.³¹ However, it is not easy to have an active market that satisfies all three conditions under the standard precepts.

If a CGU is not traded in an active market, fair value can be applied to estimate the CGU recoverable amount, but the entity is required to prove that there is a proper

³¹ Paragraph 6 of HKAS 36.

basis for making a reliable estimation of the amount obtainable from the sale of the assets or CGU in an arm's length transaction between knowledgeable and willing parties (paragraph 20), such as using recent transactions for similar assets within the same industry with adjustments for differences in condition, age, etc.

However, one question raised in this situation relates to the reliability of fair value in determining the recoverable amount of CGU where there is no active and liquid market. Also stipulated in paragraph 20, if it is not possible to determine the recoverable amount of CGU assets under fair value, the entity should apply value in use.

Value in use is defined as the present value of the future cash flows expected to be derived from an asset or CGU (paragraph 6). Based on this approach, the recoverable amount of an asset or CGU assets is determined under a model of discounted cash flow. As with fair value, some specific and detailed disclosures are required to be shown in the note-form of financial statements. Apparently, detailed disclosures are designed to provide financial statements users with enough financial information in order to evaluate the robustness of the DCF model when measuring the CGU recoverable amount. These disclosures are stipulated in paragraph 134 (d) of HKAS36.

Impairment assessments need to be more robust, and significant impairment losses are expected from the write down of property and goodwill, with assumptions applied to determine the loss (E&Y, 2009b). In order to better understand the degree of conservatism or aggression inherent in determining the recoverable amount of CGU in the DCF model by adopting value in use, some key variables such as discount rates, long-term growth rates and forecast periods are also of special interest when scrutinising the process of goodwill impairment testing.

With regard to investigating key assumptions, developing a compliance and disclosure taxonomy for discount rates, growth rates and forecast periods is necessary (Carlin *et al.*, 2007a; Carlin & Finch, 2008a). The taxonomy employed for discount rate disclosures requires each sample firm to be placed in one of four categories, namely, multiple explicit discount rates, single explicit discount rate, a range of discount rates and no effective disclosure.

Firms in the first category, „multiple explicit discount rates“, appeared to fully adhere to the disclosure requirements of HKAS 36 by disclosing unique rates applicable to each of their various CGUs. This type of disclosure fully aligns with the standard requirements and provides a higher assurance of process quality through an explicit matching of employed rates to the individual risk characteristics of defined CGUs.

Firms in the second category, „single explicit discount rate“, revealed that they defined blanket whole of firm discount rates for all defined CGUs for estimating the CGU recoverable amount in a DCF model. This doesn't appear to align with the disclosure requirements, that a discount rate unique to each defined CGU, and each CGU risk is arguably different. As a result, disclosure quality of the reporting firms in this category is judged to be lower than that of firms in the first category.

Firms assigned to the third category, disclosed a range of discount rates, which had been employed for estimating the recoverable amount of CGU assets in the DCF model. Because each defined CGU lacked specific discount rates, it is questionable whether disclosure of this category meets the technical requirements of HKAS 36. Hence the disclosure quality of reporting firms in this category is judged to be lower than that of the first two categories.

Finally, firms in the fourth category, „no effective disclosure“ failed to provide adequate discount rate disclosure and as a consequence provided no meaningful information for users of financial reports to evaluate the robustness of goodwill impairment testing. Therefore, these firms were judged to have poor disclosures and did not conform to the disclosure requirements of HKAS 36.

In relation to disclosure quality of long-term growth rates, a similar methodology was adopted. More specifically, firms were assigned to one of four categories, namely, multiple explicit growth rates, single explicit growth rate, a range of growth rates and no effective disclosure. The compliance level and disclosure quality descend from the first to the fourth category. In terms of forecast periods, multiple forecast periods are considered to be of high quality, and no effective disclosure is low quality. Two intermediaries of forecast periods are single forecast period and a range of forecast periods, but the former is better than the latter.

4.4. Measures of Discount Rates

4.4.1. The Capital Asset Pricing Model (CAPM)

Determining value in use in accordance with HKAS 36 requires estimating the cost of capital. The guidance in paragraph A17 of HKAS 36 suggests using the Weighted Average Cost of Capital (WACC) estimated, for example, based on the Capital Asset Pricing Model (CAPM).

The CAPM was developed in the 1960s and is widely used in practice, especially in the model of risk and return (Myers & Brealey, 2003). It also represents one of the most important advances in finance and is really useful in corporate finance (Ross *et al.*, 2006). It is an economic model for valuing stocks, securities and assets by relating

risk and expected return. It provides a logical framework for relating risk to expected return for risky assets or securities and for portfolios comprised of such assets.

According to Copeland *et al.* (2000), the CAPM has some key features including (i) all investors should earn at least the risk free rate of return to compensate them for the time value of money. The rate on government bonds is the proxy of the risk free rate; (ii) all investors should earn a premium for risk. The proxy of market risk is the return earned on a combination of risky investments; (iii) the risk premium needs to be adjusted to reflect the risk of the individual investment or share relative to all shares in the index of which it comprises.

The CAPM was employed to develop independent discount rate estimations for comparison with observed discount rates applied by reporting firms. According to Carlin & Finch (2009b), the application of CAPM is the preferred method to estimate an appropriate discount rate since it represents the current market assessment and the risks specific to the CGU assets of reporting firms. Using CAPM is also applicable to the requirements prescribed in HKAS 36, that discount rates employed should be asset specific in term of risks and independence of financing considerations. CAPM is regarded as the most popular method in estimating the cost of equity capital³² among the managers of United States reporting firms (Graham & Harvey, 2001).

In order to compare independently estimated and observed discount rates for each sample firm, the following steps were taken:

1. **Levered beta or geared beta (β_L).** The levered beta is the beta that reflects a capital structure that includes debts in which beta is a measure of the market risk in an

³² This is a matter of some significance. Fundamental to the research is that the methodology employed as a basis for determining firm risk adjusted discount rates is consistent with or similar to the method taken by firms in the research sample. The dominant role of CAPM-based approaches suggested by the extant literature provides a degree of comfort in the application of this method.

investment. It measures each firm's stock price sensitivity to fluctuations of the market as a whole. Beta is considered to be a key parameter in the CAPM (Fernandez, 2003). The levered beta for each firm was collected from the Worldscope Datastream Database at the financial year-end of 2005, 2006 and 2007.

2. **Unlevered beta or asset beta (β_U).** The unlevered beta is the beta of a firm after subtracting the impact of its debt obligations. An asset that has $\beta < 1$ is less risky than the market and expected to move less than the market in response to a given shock. In contrast, an asset with $\beta > 1$ is riskier than the market and expected to move more than the market.

The levered beta (β_L) was adjusted by the book value leverage ratio specific to each firm,³³ and the tax rate of the firm to measure the unlevered asset beta, using the equation of Hamada (1972) and Damodaran (1994) shown in Equation 1, below:

$$\beta_U = \beta_L / 1 + (D/E) * (1-t) \quad (1)$$

Where:

β_U = the unlevered asset beta of the firm

β_L = the levered beta of the firm

D/E = the book value leverage ratio of the firm³⁴

t = company marginal tax rate, being 17.5%

³³ It is technically preferable to estimate leverage using market values. However, in most cases, lack of data makes this difficult to achieve. As a result, a book value approach is employed for the purpose of this research.

³⁴ The book value leverage ratio for each reporting firm was calculated using the data contained in each firm's 2005, 2006 and 2007 audited financial statements. An explicit assumption in the method for delivering firm beta is that the observed book value leverage is the optimal or target capital structure for each sample-reporting firm. This may not be so in all cases.

3. **The expected after tax rate of return specific to the firm's assets (r_a).** r_a was derived using the CAPM as shown in Equation 2, below:

$$r_a = r_f + \beta_U * (r_m - r_f) \quad (2)$$

Where:

r_a = the expected after tax rate of return specific to the firm's assets

r_f = the long-term risk free rate

β_U = the unlevered asset beta of the firm³⁵

$r_m - r_f$ = the market risk premium for equity shareholders

The proxy of the long-term risk free rate is the rate on government bonds. So r_f assumes a value of 4.18% at December 2005, 3.73% at December 2006 and 3.44% at December 2007, being the Hong Kong government 10-year bond market yields.³⁶

The expected market risk premium for equity shareholders ($r_m - r_f$) is the expected return on a market portfolio over and above the risk free rate, for the term of cash flows to be discounted. Market risk premium assumes a value of 8.6% for the years 2005, 2006 and 2007. This figure is consistent with the findings of Brown *et al.* (2009) who used historical data for the period from 1994 to 2007 and is also consistent with the range of average market risk premiums in some of the literature (Fernandez, 2008a; Fernandez, 2008b).

³⁵ Beta values employed are single point historical estimates. Practitioners may typically make a series of adjustments to historical betas when designing estimates of reporting firm discount rates. These may include reference to sector betas, comparable firm betas, firm characteristics, especially pertaining to systematic risk as well as other matters such as firm size and the firm's stage of development. It was unfeasible to make adjustments of this type to the beta estimates used for the purpose of the research. The extent to which sample firms made such adjustments to beta in the development of the discount rates employed for the purposes of impairment testing would have implications for the robustness of this research's results.

³⁶ These figures were collected from the Hong Kong Monetary Authority.

4. **Pre-tax discount rate (r_p).** In the process of goodwill impairment testing, pre-tax discount rate is used to discount future cash flow estimates to present values in the model of DCF. r_p is calculated by using values of r_a and corporate tax rate as shown in Equation 3, below:

$$r_p = r_a / 1 - t \quad (3)$$

Where:

r_p = pre-tax discount rate

r_a = the expected after tax rate of return specific to the firm's assets

t = corporate tax rate³⁷

4.4.2. Goodwill Intensity

According to the DCF model, discount rate is employed for discounting future cash flows to present values for the purpose of goodwill impairment testing. So, discount rate represents a central point in deciding the magnitude of present values, CGU recoverable amounts, impairment losses and reported earnings. This chapter also used goodwill intensity as a key variable to measure the relationship between the firm's reported profits and goodwill impairment losses.

Based on the independently estimated discount rates pursuant to the process mentioned above, a comparison between independently generated and observed was undertaken for each year's sample firms. The variances between them were calculated and stratified according to industry sector and on the basis of goodwill intensity.

³⁷ Corporate income tax (i.e. 17.5%) did not change for the period from 2004 to 2007.

Goodwill intensity is a measure of the sensitivity of the sample firms' reported earnings to goodwill impairment losses, and was calculated using Equation 4, below:

$$\text{Goodwill Intensity} = \text{Goodwill Balance} / \text{Net Profit Before Tax} \quad (4)$$

By using this equation, the following is observable:

First, goodwill intensity is higher than 1.0. This suggests a high degree of sensitivity to the current period loss as a result of an impairment charge. The higher the value of goodwill intensity, the greater the risk of losses in the current financial period.

Second, goodwill intensity is greater than zero and less than 1.0. This implies a lower degree of sensitivity to a write-down profit in the current period as a result of an impairment expense.

Finally, goodwill intensity is less than zero. This suggests that a reporting firm is in an unprofitable situation and any impairment losses will further increase losses in the current period.

4.5. Measures of Audit Quality

Audit quality can be defined as the probability that an auditor discovers and reports material irregularities in the accounting system of a company (DeAngelo, 1981; Watts & Zimmerman, 1986). The ability to discover material misstatements depends on the technical competence of the auditor and the ability to report material misstatements depends on the independence of the auditor (Caneghem, 2004).

According to Copley *et al* (1994), audit quality is likely to be positively associated with compliance with accounting standards. The degree of technical compliance with the disclosure requirements of the accounting standard of goodwill impairment is used as a proxy of audit quality (Carlin *et al.*, 2009a). Thus, the measure of audit quality in this research is the extent to which the clients of audit firms comply with over complex technical provisions of a new and challenging accounting standard of goodwill impairment.

As analysed in the prior section, there are several key issues under HKAS 36 that are of potential interest and worthy of scrutiny. These are CGU structure, levels and disclosures of discount rate and long-term growth rate.

Consistent with Carlin *et al.*, (2009a), six analytical procedures were applied to the sample data for evaluating the technical compliance with disclosure requirements in relation to goodwill impairment on the part of the Big 4 audit firm clients, and audit quality variations among the Big 4 auditors.

First, sample firms were sorted by audit firm, according to whether they employed value in use, fair value less costs to sell, a combination of the two (i.e. the use of value in use in some CGUs and use of fair value in others), or failed to report the method employed. This data supported the development of insights into compliance levels with basic disclosure requirements stipulated in HKAS 36.

Second, the firms in the research sample were classified by audit firm, according to whether they allocated full goodwill values to the defined CGUs, or whether they allocated partial goodwill values to CGUs, or whether there was no meaningful information revealing how or if the goodwill value was allocated to defined CGUs. It is a basic requirement in paragraph 80 that for the purpose of impairment testing,

goodwill should be allocated to each CGU or group of CGUs that are expected to benefit from the synergies of the combination. So this data gave financial statement users insights into the compliance level with basic disclosure requirement prescribed in HKAS 36.

Third, the sample firms were filtered by audit firm, according to the relationship between the number of defined CGUs for the purpose of goodwill impairment testing and the number of defined business segments for the purpose of segment information reporting. So this data provides evidence of appropriate CGU aggregation on the part of reporting firms.

Fourth, the firms in the research sample were classified by audit firm, according to the calculated ratio of CGUs to segments. This data provides more evidence of CGU aggregation on the part of reporting firms and adds to the procedure prescribed in the third step for assessing whether CGU aggregation is appropriate.

Since most of the sample firms in the multi-year dataset employed value in use for estimating the recoverable amount of CGU assets in the process of goodwill impairment testing, the fifth analytical procedure was designed to inspect the key assumptions relating to discount rate disclosure. The sample firms were sorted by audit firm, according to the quality of discount rate disclosure in the goodwill impairment testing process. A multi-classification taxonomy was applied for discount rate disclosure and each sample firm was allocated to one of four categories. These were multiple explicit discount rates, single explicit discount rate, a range of discount rates and no effective disclosure. The quality of disclosures relating to discount rates as required under HKAS 36 was similar to the methodology analysed in section 4.3.

Sixth, the sample firms were filtered by audit firm, according to the quality of disclosure of long-term growth rate in the process of goodwill impairment testing. Data was stratified according to a very similar taxonomy to that described in relation to discount rates, i.e. multiple explicit growth rates, single explicit growth rate, a range of growth rates and no effective disclosure. The first category represented the highest level of disclosure, the fourth the poorest. Two intermediaries were single explicit growth rate and a range of growth rates, but the former was better than the latter.

4.6. Conclusion

This chapter has been concerned with the dataset gathered and methodologies adopted to support the research results which will be discussed and presented in the following chapters. As in other countries, Hong Kong has designed its own version of an accounting framework which is mainly based on the contents of IFRS. As a result, HKFRS, including HKAS 36 *Impairment of Assets*, officially came into effect for reporting firms with reporting periods on or after 1 January 2005. As 2005 was the first year of Hong Kong's transition to IFRS, the dataset was selected from 2005. To provide a more robust analysis, however, the dataset was extended to include the first three years after Hong Kong's implementation of IFRS.

This study was conducted to meet four objectives. These are to evaluate: whether or not there was any improvement in compliance levels and disclosure quality in relation to goodwill impairment testing executed by first-time adopters; variations in levels of compliance and quality of disclosure pertaining to goodwill impairment testing practice over a three-year period on the part of listed firms; variations in discount rates; and variations in audit quality of the Big 4 auditors. Accordingly, four kinds of

research samples were gathered to meet these objectives: matched sample; unmatched sample; discount rates; and audit quality.

To measure the levels of compliance and quality of disclosure bearing on goodwill impairment testing, a two-tier comparative methodology was employed. The first tier required a comparison between practices of goodwill impairment disclosures and the requirement checklist of HKAS 36. The second tier employed multi-category disclosure quality relating to key assumptions for estimating the recoverable amount of CGU assets.

The independently estimated discount rates were calculated and then compared with observed discount rates to evaluate the variances between them. CAPM, being the most popular method for estimating cost of equity capital (Graham & Harvey, 2001), was chosen for estimating discount rates. Goodwill intensity was also employed for measuring the sensitivity of reported earnings to goodwill impairment losses.

Audit quality measurement was undertaken according to the degree of technical compliance with disclosure requirements pertaining to goodwill impairment. Based on this premise, a six-tier analytical frame was adopted including method employed; allocation of goodwill to defined CGUs; relationship between the number of CGUs and business segments; ratios of CGUs to business segments; discount rate disclosure; and long-term growth rate disclosures.

Chapter 5: Compliance Levels and Disclosure Quality of Goodwill Impairment of First-time Adopters

5.1. Introduction

With the increasing globalisation of financial markets there has been a greater need for international comparability of financial reporting. The international harmonisation of accounting standards has also been widely promoted. One way to achieve a more transparent and consistent reporting format in accounting convergence is to have a single set of accounting standards worldwide. To this end the International Financial Reporting Standards (IFRS) was established and adopted as the mandatory basis for reporting firms the world over in 2005 (E&Y, 2008a).

Controversially, IFRS adoption is said to attract foreign capital, enhance the quality of financial information for shareholders and regulators, enhance comparability and transparency of financial statements, and reduce the costs of preparing worldwide group financial reports (Alfredson *et al.*, 2005). By replacing localised accounting rules, IFRS has made substantial changes to the world's financial reporting landscape over the past decade.

Many studies on the implementation of IFRS have suggested that the transition from local GAAP to IFRS may have had a favourable impact on the quality of information in financial statements (Wyatt, 2005; Barth *et al.*, 2008). The benefits stemming from the increased harmonisation of accounting standards, a phenomenon driven significantly by the increased uptake and spread of IFRS, have also been widely anticipated (Street, 2002).

Together with significant and over-complex changes, variations may arise between the anticipated and actual effects in the world of practice. The question of compliance is of paramount importance in the context of IFRS implementation. It represents a precondition to the achievement of unification and convergence of practice, yet in much of the accounting and reporting research, the dimension of practice has been neglected.

With the overwhelming complexity of IFRS, the most difficult issues in practice, including goodwill impairment, have been revealed in the literature on IFRS (Alfredson *et al.*, 2005; Hoogendoorn, 2006). The difficulties of the implementation of the IFRS impairment testing regime emanate not only from the highly conceptual complexity of the standard which include the regime but also the intricately detailed and overwhelming disclosures required within the impairment accounting standard (Lonergan, 2007; Carlin & Finch, 2008a). In the new standard of goodwill impairment, there is a high degree of complexity relating to the conceptualisation, measurement and reporting of goodwill and its impairment, which represent serious concerns for researchers and practitioners.

There are several reasons why the IFRS impairment testing regime is considered the most difficult issue in practice. To test goodwill impairment, a reporting entity is required to estimate assets or the CGU recoverable amount to which goodwill is allocated. The recoverable amount will mainly be estimated according to the method of value in use, which is calculated as the present value of future cash flows. This depends greatly on subjective judgements from the management of a reporting entity so many different outcomes may be acceptable. It is very hard to determine the best result because there is no market for goodwill.

Under the goodwill impairment accounting standard, goodwill impairment testing is a highly complicated process. It requires not only the application of detailed financial modelling of discounted cash flows, but also results in a heavy compliance burden because reporting firms are required to disclose details of the assumptions applied, benchmarks referred to and processes employed in the impairment testing process. It is said to be very difficult for reporting firms to be fully compliant. Hence the question of compliance is also of great interest to regulators, auditors and financial statement users. Firms that are fully compliant with the accounting standards will generate high quality financial information that helps users of financial statements to make proper economic decisions.

Hong Kong has also shifted to an IFRS reporting framework.³⁸ As an international financial centre and a window to China, the shift to the newly complicated rules has an added and wider significance in Hong Kong's case than in any other jurisdiction (Batten & Fetherson, 2002; Green, 2003).

The reporting framework in Hong Kong that deals with the disclosure of goodwill is described through the combined effects of the new internationalised Hong Kong financial reporting standards in HKAS 38 *Intangible Assets*, HKFRS 3 *Business Combinations*, and HKAS 36 *Impairment of Assets*. These standards were promulgated by HKICPA to improve the information content of goodwill accounting in Hong Kong and should be applied to acquisitions of goodwill in business combinations. One of the key objectives of these standards was to increase transparency to ensure that financial statements of reporting firms reflect the true value of intangible assets.

³⁸ Hong Kong implemented mandatory IFRS for all reporting periods commencing on or after 1 January 2005.

The question of compliance with accounting standards, including goodwill impairment, is still occurring in the real world of financial reporting. For an international service centre and entrepôt such as Hong Kong, much potentially turns on the answer to the compliance question in relation to IFRS-based reporting. Prior studies revealed a higher rate of non-compliance and poor disclosure quality among reporting firms that adopted IFRS in Australia, New Zealand and Malaysia. The explanation for this could likely be that these studies only drew upon data from the first year of IFRS implementation; therefore, preparers and their auditors also lacked experience because the new goodwill accounting standard was very detailed and highly complex.

This chapter focuses on assessing the compliance levels and disclosure quality in relation to goodwill impairment testing by examining the detailed disclosures made by first-time adopters in the first three years after Hong Kong's implementation of IFRS. By analysing the data, compliance quality can be evaluated if there is an improvement in practice in the multi-year dataset. Using data drawn from a sample of 128 Hong Kong-listed firms in all three years (matched sample), this chapter looks specifically at evidence pertaining to disclosures of goodwill impairment under the technical requirements of HKAS 36.

The chapter is structured as follows. Section 5.2 comprises a brief review of the relevant literature. Section 5.3 represents the main part of this chapter and contains a discussion of the results. Section 5.4 sets out the key conclusions.

5.2. Relevant Literature Review

Accounting is defined as the systematic process of measuring the economic activities of an entity to provide useful information for financial statement users for making

economic decisions (Jagels & Coltman, 2004). An accounting system is said to be good if it provides management with high reliability, timing and accuracy of financial information for managing an entity effectively (Nguyen & Ngo, 2006). Previous studies have acknowledged that accounting plays a very important role and contributes to the maintenance and construction of organisational forms and regulations (Meyer, 1986).

It is acknowledged that the financial reporting of a firm is formed under the prevailing accounting standards and accounting system to reflect its economic position and financial performance. Thus, high quality accounting standards may lead to high quality financial reporting. Firms that are found to have fully compliant levels with precepts of accounting standards generate high quality financial information to assist users of financial statements in making proper economic decisions.

However, researchers have long held concerns about the quality and content of financial reports in the dimension of accounting (Carlin *et al.*, 2009c). In the literature on financial reporting, certain common topics have emerged whether they were approached from the perspective of a positivist (Watts & Zimmerman, 1986), an analyst (Sterling, 1990), or a critic (Briloff, 2004). The degree to which financial statements fairly reflect financial position, operational results and cash flows of firms is a vital concern in the literature.

According to a range of traditions, financial statements are often problematic. In some cases, there have existed accounting estimates that involve subjective judgements from management. In others, reporting and disclosures have been imperfect (Plumlee & Plumlee, 2008). Further still, there may be uncontrolled incentive problems (Berger & Hann, 2007). One item in the financial reports that represents such a reporting object is goodwill.

Goodwill has been widely acknowledged as a complex phenomenon. It is regarded as an unruly and unsettled domain, the most intangible of intangibles (Davis, 1992), which cannot be measurable (Seetharaman *et al.*, 2006). The most striking characteristic of a large proportion of the research that defines goodwill, discusses its nature and proposes a means of valuing it, is the number and variety of disagreements that are reached (Canning, 1929). It becomes even more intricate and confused when one examines the differences between the legal and accounting formulations of goodwill. Scientists and practitioners alike have created long lists of inconsistent and incompatible explanations of, and prescriptions for, the valuation and reporting of goodwill (Bloom, 2007).

There has also been a number of approaches to accounting for goodwill that denote considerable turmoil and change in jurisdictions. Goodwill treatments have led to controversies such as improper use of pooling-of-interests accounting for avoiding goodwill recognition, opportunistic behaviour in valuing in-process R&D for altering the magnitude of goodwill value, writing it off directly to the reserves or to the income statement, and the use of aggressive expense deferral amortisation techniques such as the inverse sum of the years' digits (Gibson & Francis, 1975; Carnegie & Gibson, 1987; Carnegie & Gibson, 1992; Carlin & Finch, 2007).

Consequently, a variety of goodwill treatments in practice is challenging for financial statement preparers and groups of users. The whole picture of financial position, operational results and cash flows of an entity differs according to which method is employed for goodwill treatment. This makes it more difficult for financial report users to evaluate which approach is appropriate.

To ensure that assets including goodwill are carried at no more than their recoverable amounts, impairment testing should be carried out. The process of goodwill

impairment testing is very complicated because it relies on many subjective and ambiguous assumptions such as discount rates, growth rates, forecast horizons and terminal values which involve uncertain events in the future. That is why, in undertaking goodwill impairment testing, there is a high possibility of opportunistic judgement from management and financial reporting preparers in forming financial statements for the sake of management, rather than for the sake of users of financial statements.

For goodwill treatment, the „capitalise and amortise“ approach has been replaced by „capitalise and test for impairment“. Zang (2003) asserted that amortising and expensing a fixed amount of goodwill each year over its useful life did not really accurately portray how the loss in the economic value of goodwill occurs since when goodwill losses value, it does so irregularly and in varying amounts. A rejection of the former method is not new. As a matter of fact, as early as 1906, Decksee assumed that there was no need to depreciate goodwill and keep it unchanged in the consolidated balance sheet under normal situations.

Furthermore, many researchers have supported the adoption of the new approach over the former one. Previous studies have argued that an impairment testing regime is superior to an amortisation regime. According to Wang (2005), an impairment testing regime produces enhanced capacity for financial reporting to reveal the underlying economic positions of reporting firms. The implementation of annual impairment testing for goodwill provides a clearer picture of financial statements to the group of users (Harper, 2001).

The improvement of goodwill impairment standards including the impairment testing method will lead to a better understanding by financial statement users of the expectation about assets themselves. Wyatt (2005) showed that the change in financial

reporting for goodwill is likely to be beneficial in financial reporting as better judgement in goodwill valuation is required. The Financial Accounting Standards Board (FASB) asserted that the new goodwill impairment regime will more accurately evaluate any actual decline in value and give greater insights into the economic value of goodwill.

The International Accounting Standards Board (IASB) (2005) stated that an impairment goodwill regime provides users with more meaningful information than a method in which goodwill is amortised. Donnelly & Keys (2002) argued that an impairment testing regime reflects a decline in goodwill value in a more meaningful manner than an amortisation regime. In addition, Glazer (2002) asserted that an impairment testing regime results in goodwill being evaluated through fair value measurement that reflects economic reality. If the new method of goodwill impairment testing is correctly adopted and enforced, it provides groups of users with greater insights and information than an arbitrary amortisation method (Glazer, 2002). The implementation of impairment testing regimes has enhanced the usefulness of financial statements for decision-making purposes (Chalmers *et al.*, 2009).

There is much in the literature that is critical of both the conceptual foundations and the practical consequences of IFRS. Watt (2003a) assumed that the FASB's decision to choose an impairment testing-based regime in SFAS 142 – *Goodwill and Other Intangible Assets* as an error in judgment likely to leave open the pathway to aggressive earnings management and systematic asset value over accounts. In the same vein Watt *et al.* (2003) questioned the desirability of a reporting framework that is so reliant on subjective judgements without verifying transactions and balances in the financial statements.

Building on the concerns over the conceptual foundations and practical consequences of an IFRS-based impairment testing regime, Haswell & Langfield-Smith (2008) admitted that when asset impairment standards have been drafted, technical flaws have existed. Applying impairment testing is very challenging, is regarded as one of the most difficult issues in practice (Hoogendoorn, 2006), and has the capacity to be disruptive to the preparation and interpretation of financial statements (Moehrle & Reynolds-Moehrle, 2001).

Consistent with these strong doubts and concerns, particularly pertaining to perceived complexity and heavy reliance on detailed and often subjective assessments, estimates and judgements, much of the literature provides evidence of diverse problems in relation to the impairment testing regime.

These include a lack of evidence that earning values stemming from the present regime of „capitalise and test for impairment annually“ are more value relevant than those derived from the regime of „capitalise and amortise“ (Chen *et al.*, 2006); evidence of write-off timing is associated with managerial opportunism (Anantharaman, 2007); evidence of undue delays in recording impairment charges (Henning *et al.*, 2004); evidence of gaming in the way in which goodwill is allocated between reporting units in order to reduce the chance of recording forced impairment charges (Zhang & Zhang, 2007); and evidence of comparability between entities in the manner of applying judgements on assumptions for identifying CGUs (Alfredson *et al.*, 2005).

Strong concerns about the mechanism and effect of the impairment testing regime for goodwill reporting have been expressed by both academics and practitioners. According to Alfredson *et al.* (2005), an impairment-based regime does not measure if goodwill has been impaired because where the CGU recoverable amount is less

than its carrying amount, the regime arbitrarily allocates the impairment loss first to goodwill, with no subsequent test to determine whether goodwill has been impaired or whether some of the identifiable assets have been impaired. Lonergan (2007) asserted that the IFRS impairment framework is likely to cause misleading results at odds with any discernible thread of logic or principle.

Moreover, the new accounting standard of goodwill is filled with many subjective and ambiguous precepts and permits reporting firms to have a great deal of flexibility in generating assumptions for estimating assets or the CGU recoverable amount. This allows management to use the opportunistic exercise of judgement and discretion in controlling impairment losses and retained earnings, and in forming financial statements for the sake of preparers, rather than for the sake of groups of users. Thus, it is difficult for not only financial statement users but also auditors to evaluate the robustness of goodwill impairment testing and the accuracy of results.

Opportunistic behaviour on the part of firm management is also illustrated in Astami *et al* (2006). They concluded that management tends to make decisions of increasing income in valuing goodwill when firms are highly levered and performance is low. Carlin & Finch (2008c) conducted research into discount rate selection of large Australian-listed firms and found that the discretion surrounding rate selection could be adopted opportunistically to avoid impairment losses to the detriment of transparency, comparability and decision usefulness.

Loose rules and greater flexibility in creating assumptions under subjective judgments have allowed management to be creative in their reporting of goodwill impairment testing results. Thus, conducting goodwill impairment testing in practice is not easy and produces further challenges for anyone examining the accuracy of the impairment testing-based regime.

For a variety of reasons, concerns have been expressed about the quality of financial information derived from the impairment testing framework for goodwill measurement and reporting. Yet researchers appear to have overlooked the question of compliance, or have tacitly asserted that reporting firms naturally strongly adhere to the technical requirements of accounting standards which include the impairment testing framework and that deficiencies of financial information quality which are attributed to the framework operation result from factors such as the opportunistic exercise of discretion (Carlin & Finch, 2010c). So, the issue of compliance with accounting standards emerges as very important for reporting firms in producing high quality financial reports, and is much advocated by researchers and practitioners.

While not equating technical compliance with accounting standards and the quality of the resulting disclosures (Schuetze, 1992; Clarke *et al.*, 1997), the degree to which reporting firms align with the edicts of applicable standards must be viewed as a matter which has the capacity to materially influence, and in cases of non-compliance, detract from the decision usefulness of financial reports (Carlin & Finch, 2008a).

Recently, some studies conducted on the level of compliance by listed firms in some jurisdictions of Australia, Malaysia, Singapore, New Zealand and the United Kingdom exposed that the rate of compliance with the standard provisions of impairment of assets was very low, even though reporting firms declared that they had fully conformed with the goodwill impairment accounting standard (Carlin *et al.*, 2007b; Khairi, 2008; Laili, 2008; Carlin & Finch, 2010a). In addition, extremely unusual patterns were obvious in firm level data disclosures in some specific cases (Carlin *et al.*, 2008a; Carlin & Finch, 2008c).

However, these conclusions were based on data gathered from only the first year of IFRS adoption by large and well-organised reporting firms. Arguably, the entities and

their auditors did not have enough experience in dealing with a very challenging, over-complex and detailed accounting standard.

Now that Hong Kong at last has an accounting standard for goodwill, the new accounting treatments yield the biggest challenges for preparers of financial reporting and auditors. All organisations are largely impacted by the highly prescriptive impairment testing requirements promulgated by HKAS 36. The requirement to execute annual impairment testing for goodwill, and the requirement to test when there are indications of impairment, represent a substantial challenge (Laili, 2008). Under the requirements of HKAS 36, reporting firms are required to solve significantly expanded disclosures in particular pertaining to estimating recoverable amounts in the process of impairment testing, including disclosures of key assumptions relating to both approaches of value in use and fair value.

It is perhaps not surprising, therefore, for Hong Kong reporting firms, like those in other countries such as Australia, the United Kingdom, Malaysia and New Zealand to have low technical compliance and poor disclosure quality in relation to goodwill impairment testing in the first year of IFRS adoption. Whether or not this should still be the case beyond this first year is a matter for debate; hence the need to scrutinise compliance levels and disclosure quality in the first three years of IFRS-based reporting. Thus, the key objective of this chapter is to add to the developing literature on compliance with regard to the impairment testing regime.

5.3. Assessment of Compliance Levels and Disclosure Quality of Goodwill Impairment

5.3.1. Cash Generating Unit Allocation

As analysed in the previous sections, the important threshold question was to which level the listed firms adhered to the technical requirements of HKAS 36 and the degree to which the total observed value of each sample firm's goodwill could be completely reconciled to the sum values of goodwill allocated to defined CGUs in each firm.

Table 5.1 shows the number of firms in each sample year in each industry sector under the criteria of CGU allocation compliance (fully compliant, ostensibly compliant and non-compliant). Data in Table 5.1 demonstrate that there is little evidence of unsubstantial variations of this issue among first-time adopters in the multi-year dataset following the adoption of HKAS 36.

The first and domain cluster includes 80, 93 and 99 firms in the years 2005, 2006 and 2007 respectively, where total values of goodwill were equal to values of goodwill allocated to defined CGUs. These firms were assessed as being fully compliant with the disclosure requirements of paragraph 80 of HKAS 36. Therefore, total values of carrying amounts of defined CGUs in each sample firm were obtained, and then compared with the CGU recoverable amounts (analysed in the following sections) for ascertaining the quantum of impairment losses in the process of goodwill impairment testing. The rate of compliance among the listed firms increased from 62.5% in 2005 to 72.7% in 2006 and up to 77.3% in 2007. This demonstrates that there was an improvement in the compliance level with the basic standard requirement in the time series.

The second cluster consists of a few firms³⁹ accounting for a low proportion of the whole population, on which a small immaterial value⁴⁰ of goodwill has not been allocated to defined CGUs and no justifications of unallocated values have been shown. These firms are judged to be ostensibly compliant with the disclosure requirements. The unallocated goodwill to CGUs in each sample firm makes it more difficult for financial report users to evaluate the accuracy of impairment losses in the process of goodwill impairment testing.

The third cluster is judged to be non-compliant with the basic requirement of HKAS 36 because these firms failed to report goodwill allocation values to specified CGUs, i.e. 36.7% of firms provided no effective information on this issue in 2005, 25.8% in 2006 and 20.3% in 2007. Even though the rate of non-compliance fell in the multi-year dataset it was still high in comparison with the whole population. Thus the model of goodwill impairment testing was impossible to be performed even assuming that some variables of CGU carrying amounts, and recoverable amounts of CGU assets were reliably determined.

It is striking that a high proportion of reporting firms provided no disclosure details in relation to goodwill allocation to CGUs. This is entirely contrary to the requirements of paragraph 80. Failure to provide details of reconciliation between goodwill

³⁹ In 2005, Guangdong Inv (Utility, Energy & Construction) had a goodwill balance of \$139.3 million, but only allocated to one CGU, water supply, with the amount of \$138.9 million. The percentage of unallocated goodwill to CGUs was 0.28%. In 2006, Guangdong Inv (Utilities, Energy & Construction) had a goodwill balance of \$216.13 million, but only allocated to one CGU, water supply, with the amount of \$215.76 million. The percentage of unallocated goodwill to CGU was 0.16%. Cathay Pac Air (Telecommunications & Services) had a goodwill balance of \$7,390 million, but only allocated to one CGU, airline operation, with the amount of \$7,351 million. The percentage of unallocated goodwill to CGUs was 0.52%. In 2007, Guangdong Inv (Utilities, Energy & Construction) had a goodwill balance of \$256.12 million, but only allocated to one CGU, water supply, with the amount of \$255.76 million. The percentage of unallocated goodwill to CGU was 0.14%. Towngas China (Utilities, Energy & Construction) had a goodwill balance of \$2,180.29 million, but allocated with the amount of \$2,111 million. The percentage of unallocated goodwill was 3.17%; Cathay Pac Air (Telecommunications & Services) had a goodwill balance of \$7,666 million, but only allocated to CGU, airline operation, with the amount of \$7,627 million. The percentage of unallocated goodwill to CGUs was 0.5%.

⁴⁰ Materiality is determined by comparing the dollar value of the reconciliation gap with the dollar value of the total goodwill balance of the firm.

balances and goodwill allocated to defined CGUs creates more problems for users of financial statements to undertake an independent evaluation of the robustness of the goodwill impairment testing model.

Table 5.1: CGU Allocation Compliance by Sector

Sector	Fully Compliant (No. of firms)			Ostensibly Compliant (No. of firms)			Non-Compliant (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	23	26	29	-	-	-	13	10	7
Financials	14	13	15	-	-	-	2	3	1
Telecommunications & Services	20	25	25	-	1	1	13	7	7
Materials & Industrial Goods	9	13	14	-	-	-	9	5	4
Utilities, Energy & Construction	14	16	16	1	1	2	10	8	7
TOTAL (n)	80	93	99	1	2	3	47	33	26
<i>Percentages in each year</i>	<i>62.5%</i>	<i>72.7%</i>	<i>77.3%</i>	<i>0.8%</i>	<i>1.6%</i>	<i>2.3%</i>	<i>36.7%</i>	<i>25.8%</i>	<i>20.3%</i>

5.3.2. Business Segments and Cash Generating Units

The allocation of goodwill to defined CGUs is a crucial procedure because it affects the impairment charges being recognised. By defining an inappropriate number of CGUs, whether too many or too few relative to the true manner of operating units within a firm, produces independent streams of cash flows, with which at least some goodwill is involved. In order to have insights into CGU aggregation, it is necessary to compare the number of defined CGUs and the number of business segments, as set out in Table 5.2. According to paragraph 80, CGUs or groups of CGUs to which goodwill is allocated for the purpose of impairment testing represent the lowest level within the firm at which goodwill is monitored for internal management purposes and should not be larger than segments as defined for segment reporting purposes.

Table 5.2 illustrates the relationship between the number of CGUs and the number of business segments in the multi-year dataset. There is evidence of immaterial variations in different categories of relationship between the number of CGUs and the number of business segments. Of the 128 reporting firms which gave sufficient disclosures to identify CGUs for three consecutive years, only 11.7% in 2005, 12.5% in 2006 and 14.8% in 2007 defined more CGUs than business segments, whereas a further 18% in 2005, and 22.7% in both 2006 and 2007 identified as many CGUs as business segments. If the number of CGUs is higher or equal to the number of business segments it suggests that there is a lower risk of CGU aggregation and may be compliant with the standard requirements.

The data also show a high proportion of firms that disclosed fewer defined CGUs than business segments (approximately two-fifths of the sample firms in each year), and a rather high proportion (though falling) of firms that provided no effective disclosure at all pertaining to defined CGUs. The large number of firms that defined fewer

CGUs than business segments suggests a greater risk of inappropriate CGU aggregation in the process of goodwill impairment testing because there is a high possibility that some CGUs involve more than one business segment or some business segments do not have any CGUs related to them. As a result, the content of paragraph 80 may be violated. So the firms that defined fewer CGUs than required may have had strategies for underestimating impairment expenses or for avoiding unwanted impairment losses.

In investigating the industry by industry, CGU aggregation risk among firms is not well distributed. In the time series, firms in sections of Consumer Goods & Conglomerate, and Utilities, Energy & Construction defined fewer CGUs than business segments. In contrast, firms in sectors of Financials, and Telecommunication & Services tended to define more CGUs than business segments.

First-time adopters who defined fewer CGUs than business segments and disclosed no effective information represented a high percentage of the population, though the numbers fell slightly, from about 70% in 2005, to 65% in 2006 and 62% in 2007. This denotes that the rate of non-compliance bearing on paragraph 80 was relatively high. Hence the reliability of the goodwill impairment testing process is questionable.

Table 5.2: Business Segments and CGU Aggregation by Sector

Sector	No. CGUs > No. Segments (No. of firms)			No. CGUs = No. Segments (No. of firms)			No. CGUs < No. Segments (No. of firms)			No Effective Disclosure (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	3	2	5	4	6	6	18	20	19	11	8	6
Financials	3	2	2	4	4	4	7	7	9	2	3	1
Telecommunications & Services	5	6	7	8	11	9	9	11	12	11	5	5
Materials & Industrial Goods	1	1	1	4	6	7	5	6	7	8	5	3
Utilities, Energy & Construction	3	5	4	3	2	3	11	11	12	8	7	6
TOTAL (n)	15	16	19	23	29	29	50	55	59	40	28	21
<i>Percentages in each year</i>	<i>11.7%</i>	<i>12.5%</i>	<i>14.8%</i>	<i>18.0%</i>	<i>22.7%</i>	<i>22.7%</i>	<i>39.1%</i>	<i>43.0%</i>	<i>46.1%</i>	<i>31.3%</i>	<i>21.9%</i>	<i>16.4%</i>

5.3.3. Cash Generating Unit to Segment Ratio

Table 5.3 contains further data that relates to the CGU aggregation issue, through calculation of the CGU to business segment ratio for the whole population. Consistent with the results shown in Table 5.2, on average fewer numbers of CGUs than business segments were defined for first-time adopters in the three consecutive years following Hong Kong's adoption of IFRS.

In Table 5.3 the average numbers of defined CGUs and business segments are contrasted with average numbers of controlled subsidiary entities in each industry sector as well as the whole population. This suggests that there is a high possibility of inappropriate CGU aggregation, and consequently a reduction in the transparency of financial statements.

The data in Table 5.3, showing the ratio of CGU to business segment as less than one, suggests the existence of a heightened risk of CGU aggregation and a high possibility of minimising forced impairment losses in the time series. This raises concerns that there has been an aggregation problem in the context of Hong Kong. Specifically, sample firms defined, on average, 0.80, 0.76 and 0.78 CGUs for each business segment in 2005, 2006 and 2007 respectively. According to Carlin & Finch (2007), CGU aggregation is a device used to manage risk and timing of goodwill impairment charges. Because of a high possibility of minimising impairment charges in Hong Kong, earnings and net assets may have been overstated, and leverage may have been understated.

Table 5.3: Analysis of Controlled Entities, Business Segments and CGUs by Sector

Sector	Average Number of Controlled Entities			Average Number of Business Segments			Average Number of CGUs			Ratio of CGUs to Business Segments		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	43.61	46.11	43.56	3.81	3.83	3.53	2.80	2.29	2.43	0.74:1	0.60:1	0.69:1
Financials	42.38	44.94	45.13	4.19	4.50	4.44	2.93	3.38	3.20	0.70:1	0.75:1	0.72:1
Telecommunications & Services	34.15	35.76	35.03	3.00	3.06	2.97	2.91	3.00	2.93	0.97:1	0.98:1	0.99:1
Materials & Industrial Goods	23.39	26.89	29.17	3.33	3.44	3.50	2.60	2.15	2.27	0.78:1	0.63:1	0.65:1
Utilities, Energy & Construction	48.72	54.76	50.36	3.08	3.00	2.96	2.44	2.53	2.35	0.79:1	0.84:1	0.79:1
TOTAL (n)	39.17	42.28	40.86	3.44	3.50	3.39	2.75	2.65	2.63	0.80:1	0.76:1	0.78:1

5.3.4. Method Employed

The important issue with regard to disclosure for goodwill impairment testing is the selection of the method applied in estimating the recoverable amount of CGU assets to determine whether impairment charges have occurred. The descriptive statistic technique has been used to show the frequency of each method employed in the multi-year data set, and is illustrated in Table 5.4.

The main method used to estimate the CGU recoverable amount was value in use, which dominated in the initial IFRS adoption year and continued to dominate thereafter. Specifically, 81.3% of firms applied value in use in 2005, 88.3% in 2006 and 89.1% in 2007. This is consistent with research findings pertaining to preferred value methods in other jurisdictions such as Australia, Malaysia, New Zealand and Singapore. According to Lonergan (2007), serious objections have been recently raised in the technical accounting literature with regard to the rigour and workability of value in use as a recoverable amount determination technique and the motivation underpinning the dominant firm preference for this technique.

In cases where value in use is chosen as the basis for estimating the recoverable amount of CGUs, reporting firms are required to disclose detailed financial information in relation to discount rates, growth rates and forecast horizons as variables of a DCF model which supports the production of value in use estimates. Each of these variables has the capacity to have a material impact on the results of the recoverable amount estimates.

A small number of firms applied mixed method⁴¹ and fair value exclusively in the time series. The only challenge for firms selecting the fair value approach was in

⁴¹ Mixed method is a combination of value in use and fair value.

choosing an appropriate benchmark asset portfolio from which a current price could be reliably observed. These firms coped with a lower requisite disclosure burden and avoided the obligation to provide detailed assumptions of discount rates, growth rates and forecast periods.

Remarkably, firms were frequently unsuccessful in disclosing their choice of method employed for projecting recoverable amounts. Furthermore, the percentages of firms that provided no information relating to the method applied in 2005, 2006 and 2007 were 14.1%, 3.9% and 4.7% respectively (falling in general). These first-time adopters tried to ignore the professional regulation framework and were judged not to have aligned with HKAS 36. This suggests that they may have resisting compliance with IFRS goodwill accounting and reporting disclosure in the period from 2005 to 2007. Once again, users of financial reports have no chance to evaluate the robustness of goodwill impairment testing.

As analysed above, value in use was the main method for estimating the recoverable amount, and accounted for more than 80% in each year sample; hence the focus of this chapter on the key assumptions given for estimating the CGU recoverable amount when a firm selects value in use. Some factors such as discount rates, growth rates and forecast periods, as requirements of the accounting standard, should be scrutinised in the DCF model for estimating present values that are discounted from future cash flows. Each of the factors in the DCF model is potentially arguable. Discount rate provides a strong signal pertaining to assessment of the risk profile of the various cash generating elements of the business. Growth rate informs a signal of the degree of optimism or pessimism about future business prospects. Forecast period horizon assists with the development of an understanding of the robustness of the modelling exercise and the likelihood that terminal value dominates in the estimate of

the present values of CGU cash flows. Analysis of key subjective assumptions given by first-time adopters is discussed in the following sections.

Table 5.4: Method Employed to Determine Recoverable Amount of CGUs

Sector	Fair Value Method (No. of firms)			Value in Use Method (No. of firms)			Mixed Method (No. of firms)			Method not Disclosed (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	1	1	1	30	32	32	1	1	1	4	2	2
Financials	-	1	-	14	14	15	-	1	1	2	-	-
Telecommunications & Services	2	3	3	27	28	28	1	2	1	3	-	1
Materials & Industrial Goods	-	-	-	13	16	16	1	1	1	4	1	1
Utilities, Energy & Construction	-	-	-	20	23	23	-	-	-	5	2	2
TOTAL (n)	3	5	4	104	113	114	3	5	4	18	5	6
<i>Percentages in each year</i>	<i>2.3%</i>	<i>3.9%</i>	<i>3.1%</i>	<i>81.3%</i>	<i>88.3%</i>	<i>89.1%</i>	<i>2.3%</i>	<i>3.9%</i>	<i>3.1%</i>	<i>14.1%</i>	<i>3.9%</i>	<i>4.7%</i>

5.3.5. Discount Rate

Discount rates are focal requirements when firms decide to employ the value in use approach as a basis for CGU recoverable estimation. The standard requires that discount rate should be a pre-tax rate that reflects the current market assessment of the time value of money and the risks specific to the asset or group of assets for which the future cash flow estimates have not been adjusted. This also implies that discount rates should show variations across CGUs where business risk is inherently different. Discount rates are of material significance to financial statement users seeking to independently assess the impairment testing employed by an entity. The variation in discount rate disclosures of the Hong Kong first-time adopters in the multi-year dataset is exhibited in Tables 5.5 and 5.6.

It can be seen from Table 5.5 that the discount rate disclosures among first-time adopter firms in the whole population were inadequate when benchmarked against the requirements of HKAS 36. That is why there is much room for discussion regarding this practice, which is against expectations from standard setters. Remarkably, a high proportion of sample firms failed to disclose any information in relation to discount rates that they employed for the purpose of CGU recoverable amount estimates.

Specifically, the rate of non-compliance with the basic requirements of HKAS 36 fell slightly over the period of the study, from 19.6% in 2006 to 17.8% in 2006 and 13.6% in 2007. These firms entirely ignored the question of discount rate even though discount rate plays a very important role in the DCF model. If there is no information on discount rate, the CGU recoverable amount is hard to measure. Thus, impairment losses remain unknown and consequently financial statement users are not able to evaluate the robustness of the impairment testing process.

Moreover, a small number of firms employed a range of discount rates in the value estimation exercise, i.e. 7.5% in 2005, 5.9% in 2006 and 7.6% in 2007, but provided no details of specific discount rates employed in each CGU. Using a range of discount rates for different defined CGUs would produce recoverable amounts in a range of values; thus impairment losses may be estimated in a range of values. So this type of disclosure yields little useful insight into the risk profiles of different defined CGUs, which would assist report users to assess the accuracy of the goodwill impairment testing process.

The dominant approach employed was single discount rate for all defined CGUs in a gradually increasing manner. Specifically, 58.9% of firms used this method in 2005, 61.9% in 2006 and 63.6% in 2007. These firms used the same value of discount rates for every defined CGU even though it is highly unlikely that all CGUs within a firm had significantly the same risk profile. It is therefore possible to conclude that inappropriate discount rates were being used in the impairment testing process. This also suggests that sample firms continued to either resist the requirements that multiple explicit discount rates should have been selected to be applicable to each CGU characteristic, or alternatively had technical difficulties in doing so.

The selection of discount rate for each CGU should take into account the business risk inherent in each CGU. About 14% of sample firms in each year's sample chose an individual risk adjusted discount rate for each CGU. These discount rate disclosures were evaluated to provide valuable information to a group of users in assessing the impairment testing process and were judged to have complied with the basic requirements of HKAS 36.

Table 5.6 shows discount rates applied by industry sector in the values of low end, upper end and average. Specifically, the minimum, maximum and average discount

rates in 2005, 2006 and 2007 were 1.4%, 18.3% and 9.10%; 4.2%, 35% and 9.94%; and 4%, 35% and 11.06% respectively. However, after checking Histogram and Boxplot, one outlier⁴² was excluded because it would have materially affected the final results. Present values that are discounted from future cash flows in the DCF model can be highly sensitive even to small variations of discount rate (Carlin *et al.*, 2010a).

Surprisingly, there was a wide range of discount rates applied by first-time adopters, between 1.4% and 18.3% in 2005, between 4.2% and 25.8% in 2006, and between 4% and 25.9% in 2007. Some sample firms chose too low discount rates, for example, 1.4% in 2005, 4.2% in 2006 and 4.0% in 2007. Discount rates were judged to be inappropriately low based on the long-running sovereign risk-free rates in jurisdictions such as the United States, which have a tendency to manifest at levels higher than 5%, and in Australia at 6% (Carlin *et al.*, 2009a). Applying too low discount rates results in overestimating the recoverable amount of CGU assets and therefore, underestimating impairment charges.

The average discount rates used by sample firms tend to increase in the time series. The highest rate of average discount rate in 2006 compared to 2005 and in 2007 compared to 2006 sticks to firms in Financials, and Materials & Industrial Goods respectively.

Overall, three key issues emerge in relation to discount rate issue in the multi-year dataset of the first-time adopters. First, the non-compliant rate with the basic requirements of discount rate disclosure is surprisingly high. Second, the majority of reporting firms carried out their impairment testing procedures using blanket whole of firm discount rates even though there were different inherent risks across CGUs.

⁴² Code 81: Shell Electric (Consumer Goods & Conglomerates) used a single discount rate of 35% in 2006 and 2007.

Finally, there is some evidence from the study to suggest that sample firms applied aggressively low discount rates in the impairment testing process. This scenario results in estimating incorrect CGU recoverable amounts and impairment losses. This is consistent with the findings analysed in the CGU aggregation section. So in contemplating the problems relating to discount rate, there is a question over the true and fair value of financial statements.

Table 5.5: Discount Rate Methodology
(Value in Use and Mixed Method Only)⁴³

Sector	Multiple Explicit Discount Rates (No. of firms)			Single Explicit Discount Rate (No. of firms)			Range of Discount Rates (No. of firms)			No Effective Disclosure (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	7	6	5	13	16	17	6	5	8	5	6	3
Financials	3	4	5	8	8	8	1	1	1	2	2	2
Telecommunications & Services	3	4	4	17	21	21	1	1	-	7	4	4
Materials & Industrial Goods	-	-	2	11	14	13	-	-	-	3	3	2
Utilities, Energy & Construction	2	3	2	14	14	16	-	-	-	4	6	5
TOTAL (n)	15	17	18	63	73	75	8	7	9	21	21	16
<i>Percentages in each year</i>	<i>14.0%</i>	<i>14.4%</i>	<i>15.3%</i>	<i>58.9%</i>	<i>61.9%</i>	<i>63.6%</i>	<i>7.5%</i>	<i>5.9%</i>	<i>7.6%</i>	<i>19.6%</i>	<i>17.8%</i>	<i>13.6%</i>

⁴³ Of the 128 sample firms in 2005, 2006 and 2007, 104 used the value in use method and three applied the mixed method in 2005; 113 used the value in use method and five applied the mixed method in 2006; and 114 employed the value in use method and four used the mixed method in 2007.

Table 5.6: Discount Rate Disclosures
(Value in Use and Mixed Method Only)

Sector	Min Discount Rate (Pre-tax %)			Max Discount Rate (Pre-tax %)			Average Discount Rate (Pre-tax %)						
										Δ bps		Δ %	
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2006	2007	2006	2007
Consumer Goods & Conglomerates	4.13	4.50	5.00	18.30	25.00	23.70	9.47	8.96	10.59	-51.46	162.69	-5.4%	18.2%
Financials	1.40	4.78	4.00	17.80	25.80	25.90	8.44	9.86	10.15	142.09	28.62	16.8%	2.9%
Telecommunications & Services	4.50	4.20	7.00	17.00	23.50	20.00	9.50	10.97	11.96	147.61	98.82	15.5%	9.0%
Materials & Industrial Goods	4.68	5.58	4.68	12.00	11.25	16.20	7.95	8.51	10.85	55.86	234.43	7.0%	27.6%
Utilities, Energy & Construction	5.00	6.00	6.00	15.00	15.00	16.00	9.28	9.52	9.99	24.31	47.05	2.6%	4.9%
TOTAL (n)	1.40	4.20	4.00	18.30	25.80	25.90	9.10	9.67	10.82	57.44	114.65	6.3%	11.9%

5.3.6. Growth Rate

Growth rate also plays a very important role in the DCF model and is used to extrapolate cash flow projections beyond the period covered by the most recent budgets/forecasts. Table 5.7 provides evidence of poor compliance levels and disclosure quality pertaining to this dimension of the requirements of HKAS 36.

The data show that an alarmingly high number of first-time adopters failed to provide any meaningful disclosures in relation to assumed growth rates over the three years under investigation. The rate of non-compliance reduced in the time frame, from 71% in 2005, to 66% in 2006 and 63.6% in 2007. This result is consistent with findings relating to this phenomenon in other jurisdictions and raises serious questions about the extent to which HKAS 36 can be fully aligned with on the part of reporting firms, especially first-time adopters.

A high proportion of first-time adopters assumed single growth rates (slight increase) for all defined CGUs although characteristics and inherent risks were arguably different across CGUs, i.e. 20.6% in 2005, 22.9% in 2006 and 24.6% in 2007. This also reduced the reliability of goodwill impairment testing outcomes and impairment losses.

A small number of sample firms reported different explicit growth rates for various CGUs in the multi-year dataset. These fluctuated from 7.5% in 2005, to 8.5% in 2006 and 7.6% in 2007. This is a good signal for financial statement preparers in denoting inherent risks applicable to different defined CGUs. These disclosures were judged to have complied with the accounting requirements of HKAS 36.

The lowest proportion of firms applied a range of growth rates. These increased slightly from 0.9% in 2005 to 2.5% in 2006 and 4.2% in 2007. With no specific discount rate for each CGU, the terminal value of each CGU was calculated within a range of values, and consequently the CGU recoverable amount was also determined within a range of values. So the accuracy of the CGU recoverable amount was questionable. Thus, it is very hard for financial statement users to assess the accurate outcomes of the goodwill impairment testing process.

Table 5.8 shows the lowest, highest and average growth rates applied by industry sector. By checking Histogram and Boxplot, there were no outliers in the population bearing on growth rates. A growth rate of 0% was considered to be the lowest point. Dispersions of growth rate applied by first-time adopters in each year were different, with 13% in 2005, 20% in 2006 and 26.7% in 2007.

Firms in Sectors of Consumer Goods & Conglomerates, and Financials tend to employ growth rates in the following years lower than previous years, whereas firms in Utilities & Construction tend to apply growth rates in the following years higher than previous years.

Table 5.7: Growth Rate Methodology
(Value in Use and Mixed Method Only)

Sector	Multiple Explicit Growth Rates (No. of firms)			Single Explicit Growth Rate (No. of firms)			Range of Growth Rates (No. of firms)			No Effective Disclosure (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	3	3	2	3	4	5	-	1	2	25	25	24
Financials	1	1	2	6	8	8	-	-	-	7	6	6
Telecommunications & Services	3	5	4	8	8	11	-	2	-	17	15	14
Materials & Industrial Goods	1	-	-	4	4	5	-	-	-	9	13	12
Utilities, Energy & Construction	-	1	1	1	3	-	1	-	3	18	19	19
TOTAL (n)	8	10	9	22	27	29	1	3	5	76	78	75
<i>Percentages in each year</i>	<i>7.5%</i>	<i>8.5%</i>	<i>7.6%</i>	<i>20.6%</i>	<i>22.9%</i>	<i>24.6%</i>	<i>0.9%</i>	<i>2.5%</i>	<i>4.2%</i>	<i>71.0%</i>	<i>66.1%</i>	<i>63.6%</i>

Table 5.8: Growth Rate Disclosures
(Value in Use and Mixed Method Only)

Sector	Min Growth Rate (%)			Max Growth Rate (%)			Average Growth Rate (%)						
	2005	2006	2007	2005	2006	2007	2005	2006	2007	Δ bps		Δ %	
										2006	2007	2006	2007
Consumer Goods & Conglomerates	0.00	0.00	0.00	8.30	9.00	10.00	2.84	2.56	2.11	-27.92	-45.14	-9.8%	-17.6%
Financials	0.00	0.00	0.00	13.00	14.00	8.00	4.17	3.39	3.17	-77.67	-22.03	-18.6%	-6.5%
Telecommunications & Services	0.00	0.00	0.00	10.00	20.00	15.60	3.10	4.13	3.41	103.12	-71.67	33.3%	-17.4%
Materials & Industrial Goods	0.00	0.00	0.00	6.80	5.00	8.00	2.19	1.25	3.40	-94.00	215.00	-42.9%	172.0%
Utilities, Energy & Construction	0.00	0.00	1.30	5.00	5.00	26.76	1.75	2.63	7.88	87.50	525.75	50.0%	200.3%
TOTAL (n)	0.00	0.00	0.00	13.00	20.00	26.76	3.06	3.21	3.50	15.49	28.69	5.1%	8.9%

5.3.7. Forecast Period

The final key assumption in estimating the CGU recoverable amounts where sample firms employed value in use was associated with disclosures made about the explicit cash flow forecast horizon. The data in Tables 5.9 and 5.10 show that firms simply adopted the single cash flow forecast period in estimating the recoverable amount of CGU in the DCF model. This is proved by the dominant selection of a single explicit forecast horizon with 81 (75.7%), 96 (81.4%) and 97 (82.2%) firms in 2005, 2006 and 2007 respectively. This suggests that first-time adopters had a tendency to choose easy and simple approaches to the DCF model, which therefore does not adequately reflect variations in business conditions among defined CGUs.

Strikingly, the rate of non-compliance with the requirements of HKAS 36 in relation to forecast period disclosure decreased over the period of the study, from 18.7% in 2005 to 11.9% in 2006 and 8.5% in 2007. In cases where there was no information on the length of the forecast period disclosure, assuming that data of future cash flow estimates, discount rates and long-term growth rates were available and reliable, the DCF model could not be conducted and the CGU recoverable amount could not be estimated.

Table 5.10 shows the lowest, highest and average forecast periods applied by industry sector. The minimum, maximum and average forecast periods were one year, 40 years and 6.79 years (in 2005); one year, 40 years and 6.72 years (in 2006); and one year, 40 years and 6.82 years (in 2007). However, by checking Histogram and Boxplot, two outliers⁴⁴ were excluded in the final results because they had too much of an affect on the final results.

⁴⁴ Tiajin Dev (Consumer Goods & Conglomerates) disclosed a single forecast period of 40 years in all three years; Chong Hing Bank (Financials) disclosed a single forecast period of 40 years in 2005.

Some first-time adopters in all industry sectors disclosed very long forecast periods, not including the outliers that were excluded in Table 5.10. It is a fact that the longer the forecast period, the more incorrect the estimates of future cash flow, and consequently the more inaccurate the CGU recoverable amount. The reason is that future cash flow is very difficult to obtain exactly as expected while there are many factors that change very quickly and unexpectedly, especially during financial crises.

As presented in Table 5.10, the growth rate of average forecast period in 2006 compared to 2005 is higher than that in 2007 compared to 2006. On average, the forecast period was greater than six years in each sample year. According to the requirements of paragraph 33, projections based on budgets or forecasts should cover a five-year maximisation period, unless a longer period can be justified. However, some firms applied longer periods, and no justifications existed in the note-forms of consolidated financial statements.

**Table 5.9: Disclosure of Forecast Period Method by Sector
(Value in Use and Mixed Method Only)**

Sector	Multiple Forecast Period (No. of firms)			Single Forecast Period (No. of firms)			Range of Forecast Period (No. of firms)			No Effective Disclosure (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	2	2	2	25	26	26	1	2	3	3	3	2
Financials	1	2	2	10	10	11	1	1	1	2	2	2
Telecommunications & Services	-	1	-	21	26	26	1	-	-	6	3	3
Materials & Industrial Goods	-	-	-	12	16	16	-	-	-	2	1	1
Utilities, Energy & Construction	-	-	1	13	18	18	-	-	2	7	5	2
TOTAL (n)	3	5	5	81	96	97	3	3	6	20	14	10
<i>Percentages in each year</i>	<i>2.8%</i>	<i>4.2%</i>	<i>4.2%</i>	<i>75.7%</i>	<i>81.4%</i>	<i>82.2%</i>	<i>2.8%</i>	<i>2.5%</i>	<i>5.1%</i>	<i>18.7%</i>	<i>11.9%</i>	<i>8.5%</i>

Table 5.10: Disclosure of Forecast Period by Sector
(Value in Use and Mixed Method Only)

Sector	Min. Forecast Periods (years)			Max. Forecast Periods (years)			Average Forecast Periods (years)							
	2005	2006	2007	2005	2006	2007	2005	2006	2007	Δ bps		Δ %		
										2006	2007	2006	2007	
Consumer Goods & Conglomerates	1	1	1	20	20	21	6.09	6.10	6.13	1.09	2.99	0.2%	0.5%	
Financials	1	1	1	20	24	24	6.77	6.88	6.62	11.19	-26.92	1.7%	-3.9%	
Telecommunications & Services	1	1	1	10	16	16	4.89	5.06	5.08	16.92	2.14	3.5%	0.4%	
Materials & Industrial Goods	1	1	1	10	26	25	4.25	7.13	7.19	287.50	6.25	67.6%	0.9%	
Utilities, Energy & Construction	3	1	1	25	24	23	8.69	7.89	8.31	-80.34	42.06	-9.2%	5.3%	
TOTAL (n)	1	1	1	25	26	25	6.01	6.40	6.52	39.22	12.55	6.5%	2.0%	

5.4. Conclusion

This chapter collected evidence on whether there was an improvement in compliance levels and disclosure quality with regard to goodwill impairment on the part of first-time adopters in the three consecutive years after IFRS implementation in Hong Kong. The methodology employed in this chapter is consistent with prior published studies on the subject in other jurisdictions including Australia, Malaysia, New Zealand and Singapore.

This research shows that the rate of non-conformity and poor disclosure quality in relation to goodwill impairment gradually decreased in the specified time frame. This suggests that there was an improvement in compliance relating to the intricate and highly challenging provisions of HKAS 36, arguably because financial reporting preparers had gained more experience from previous mistakes, produced higher quality financial reports, and were more aligned with the accounting standards.

However, an alarmingly high rate of poor disclosure and non-compliance with HKAS 36 exists among these goodwill-intensive first-time adopters after the first three years of Hong Kong's adoption of IFRS, casting doubts over the hypothesis that lax compliance is a characteristic associated with early implementation. Misstatements existed in every single procedure of goodwill impairment testing. This cannot be interpreted simply as a feature of first-year teething problems, which are often associated with the implementation of new processes, especially when these are as intricate and complex as those embedded in HKAS 36.

The results of this research notably resemble other findings revealed in analogous research conducted in other jurisdictions. This increases the likelihood that the outcomes of low compliance and patchy disclosure quality in those jurisdictions were

not a product of jurisdiction specific idiosyncrasies, but more likely, a systematic problem which goes beyond borders and exists wherever IFRS has been employed or is in the process of being employed.

Various reasons are given to explain the low compliance and poor disclosure quality pertaining to goodwill impairment testing. For example, there is inadequate competence or a stubborn unwillingness to yield to the edicts of the mandated reporting framework; or complex, unwieldy and conceptually challenged precepts are promulgated so there is never any hope of systematic compliance. Whatever the reasons, evidence of non-compliance combined with a lack of evidence of obvious enforcement activities would represent a basis for substantial concerns about the efficacy of the financial regulatory framework operating not only in Hong Kong, but also in other countries such as Australia, Malaysia, New Zealand, Singapore and the United Kingdom. This should raise concerns for academic researchers, practitioners, policy makers and regulators alike.

Chapter 6: Compliance Levels and Disclosure Quality of Goodwill Impairment of Hong Kong-Listed Firms

6.1. Introduction

The shift from indigenous GAAP to IFRS implementation has brought fundamental changes to the financial reporting landscape in Hong Kong. This has been particularly apparent in the case of accounting for and the reporting of goodwill that is acquired in a business combination. The replacement of the systematic amortisation treatment with an impairment testing approach to goodwill accounting is regarded as one of the most profound changes in this process. In principal, goodwill is regarded as impaired when an entity is unable to recover the asset's balance sheet carrying amount.

According to Li & Meeks (2006), proponents of the IFRS-based approach to goodwill reporting, there is a range of putative benefits relating to the implementation of an impairment testing-led approach to goodwill accounting and reporting, including evidence of the improved value relevance of impairment charges as compared to annual amortisation expenses. The introduction of an impairment testing-led system has delivered an enhanced capacity for financial reports to reflect and signal the underlying economic position of reporting entities (Wang, 2005).

On the contrary, substantial concerns about the efficacy and basis in principle of this new framework has been shown (Lonergan, 2007). Moreover, it is evident from the practitioner literature that entities subject to the new impairment testing regime for goodwill accounting and reporting rapidly developed mechanisms designed to reduce the risk or manage the timing of unwanted impairment charges (Harris & Caplan, 2002).

The anxiety over the efficacy of the goodwill impairment testing regime was reasonable because there was evidence of opportunistic behaviour in the allocation of acquisition purchase consideration between various asset classes and across the operating units which comprise a business, the exercise of judgement in the selection of appropriate market value benchmarks and the opportunistic behaviour in the selection of key valuation input variables including risk adjusted discount rates and long-term growth rates (Lonergan, 2007). Each of these variables in the DCF model has the capacity to materially impact the robustness and results of the impairment testing process, especially when employing the value in use approach for determining a recoverable amount of CGU assets (Carlin & Finch, 2010a).

In approaching the theme of goodwill reporting, the main contribution of this chapter is to add to the developing literature on compliance with regard to the impairment testing regime. Prior studies on impairment accounting and financial reporting appear to have been designed on the tacit assumption of systematic standards compliance on the part of financial statement preparers. By contrast, some recent studies have challenged that assumption. Unlike earlier contributions to this theme, this chapter focuses on the strong institutional and regulatory frameworks in Hong Kong.

Thus, this chapter collects evidence for evaluating compliance levels and disclosure quality pertaining to goodwill impairment in the first three years after Hong Kong's implementation of IFRS. In contrast to the previous chapter, the final sample firms consist of a different number of firms in different years (unmatched sample).

This chapter is organised as follows. Section 6.2 identifies the issue of the study. Section 6.3 provides a discussion and analysis of the results relating to compliance level and disclosure quality in the multi-year dataset. Section 6.4 contains key conclusions.

6.2. Issue of the Study

As mentioned in the previous chapter, concerns have been expressed about the quality of financial information stemming from the goodwill impairment testing framework. It seems that the issue of compliance with accounting standards including goodwill impairment has been overlooked or reporting firms naturally adhere to accounting standards. However, the facts are quite different. In cases where reporting firms have ostensible compliance, non-compliance would yield different results pertaining to items in the financial statements and reduce the reliability of financial information. Hence the need for research into the compliance issue with respect to goodwill impairment testing, especially in the context of Hong Kong.

Prior research into the level of compliance in relation to goodwill impairment in other jurisdictions such as Australia, the United Kingdom, New Zealand and Malaysia concluded that the rate of non-compliance and poor quality of disclosure were very high in the first year after implementation of IFRS.

In contrast to the studies above, this research focuses on this issue as it pertains to data drawn from the Main Board of HKEx where Hong Kong is an international financial service hub and entrepôt with strong institutional and regulatory frameworks. The sample selection of this chapter is quite different from that in the previous chapter. This chapter evaluates the compliance rate and disclosure quality for all listed firms provided that sample firms were satisfied with criteria that were described in Chapter 4, regardless of whether they were first-time adopters or not (unmatched sample).

Based on the unmatched sample, this study describes the practice of applying the goodwill impairment testing regime over the three-year period by examining the

detailed goodwill impairment disclosures under the technical requirements of HKAS 36.

6.3. Assessment of Compliance Levels and Disclosure Quality of Goodwill Impairment

6.3.1. Cash Generating Unit Allocation

As mentioned in the Methodology section, a comparative procedure was conducted between the practices and requirements of goodwill impairment disclosures. Regarding the issue of CGU allocation, the degree to which total goodwill balances and the sum of goodwill amounts allocation to specified CGUs were fully matched in each year's firms.

According to the requirements of HKAS 36, three classes were designed to show the different levels of CGU allocation compliance, namely full compliance, ostensible compliance and non-compliance. The number of listed firms in each sector is illustrated in Table 6.1. There is, at best, weak evidence of variation in this issue among sample firms in the first three years.

As can be seen from Table 6.1, the first principal class belongs to the sample firms (slight increase) in which total values of goodwill balances were fully matched with values of goodwill allocation to defined CGUs, i.e. 64% of firms in 2005, 71.5% in 2006 and 74.6% in 2007. These firms were aligned with the basic technical requirements of HKAS 36. Based on the value of goodwill allocated to defined CGUs, the total value of CGU carrying amounts were calculated and then compared with the recoverable amounts of CGU (if obtainable) for calculating impairment losses in the process of goodwill impairment testing.

The second class was assigned to a few firms⁴⁵ to which small immaterial values of goodwill had not been fully allocated to specified CGUs and no explanations of differences given. These firms were assessed to be ostensibly compliant with the basic requirements of HKAS 36. The values of goodwill that were allocated partially to defined CGUs triggered inaccurate results of recoverable amount estimates and impairment losses (if any) and reduced the reliability of the goodwill impairment testing process.

A gradual decrease, from 35.4% in 2005 to 27.7% in 2006 and 24% in 2007, was found in sample firms that failed to disclose any information in relation to goodwill allocation to specified CGUs. These firms did not adhere to the basic requirements of HKAS 36. Lacking capacity to trace goodwill to the CGU level removed the capacity of a group of financial statement users to make robust independent evaluations of goodwill value since the most forensic disclosure requirements of HKAS 36 are at the CGU level. Without knowledge of what CGUs have been defined and what level of goodwill value has been attributed to an individual CGU, reporting relating to goodwill is highly opaque and of little material assistance to users of financial statements (Carlin *et al.*, 2010b).

⁴⁵ In 2005, Guangdong Inv (Utility, Energy & Construction) had a goodwill balance of \$139.3 million, but only allocated to one CGU, water supply, with the amount of \$138.9 million. The percentage of unallocated goodwill to CGU was 0.28%. In 2006, Guangdong Inv (Utilities, Energy & Construction) had a goodwill balance of \$216.13 million, but only allocated to one CGU, water supply, with the amount of \$215.76 million. The percentage of unallocated goodwill to CGU was 0.16%. Cathay Pac Air (Telecommunications & Services) had a goodwill balance of \$7,390 million, but only allocated to one CGU, airline operation, with the amount of \$7,351 million. The percentage of unallocated goodwill to CGU was 0.52%. In 2007, Guangdong Inv (Utilities, Energy & Construction) had a goodwill balance of \$256.12 million, but only allocated to one CGU, water supply, with the amount of \$255.76 million. The percentage of unallocated goodwill to CGU was 0.14%. Towngas China (Utilities, Energy & Construction) had a goodwill balance of \$2,180.29 million, but allocated with the amounts of \$2,111 million. The percentage of unallocated goodwill was 3.17%; Cathay Pac Air (Telecommunications & Services) had a goodwill balance of \$7,666 million, but only allocated to CGU, airline operation, with the amount of \$7,627 million. The percentage of unallocated goodwill to CGU was 0.5%.

In the industry contexts, the highest levels of non-compliance pertaining to CGU allocation belong to the sector of Materials & Industrial Goods, whereas the highest levels of compliance in relation to this issue stick to the sector of Financials.

The rate of non-conformity with the technical requirements is relatively high, and cannot be explained on the premise that it is a characteristic of first-year teething problems. Perhaps the requirements of HKAS 36 which is analogous with ISA 36 are so intricate that financial statement preparers did not know how to apply them in practice, or maybe they tried to resist the new and complicated accounting standard.

Table 6.1: CGU Allocation Compliance by Sector

Sector	Fully Compliant (No. of firms)			Ostensibly Compliant (No. of firms)			Non-Compliant (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	32	55	59	-	-	-	16	18	18
Financials	14	17	21	-	-	-	2	7	4
Telecommunications & Services	28	48	47	-	1	1	19	20	14
Materials & Industrial Goods	11	21	31	-	-	-	9	8	6
Utilities, Energy & Construction	18	37	39	1	1	2	11	16	22
TOTAL (n)	103	178	197	1	2	3	57	69	64
<i>Percentages in each year</i>	<i>64.0%</i>	<i>71.5%</i>	<i>74.6%</i>	<i>0.6%</i>	<i>0.8%</i>	<i>1.1%</i>	<i>35.4%</i>	<i>27.7%</i>	<i>24.2%</i>

6.3.2. Business Segments and Cash Generating Units

Under the technical requirements of HKAS 36, the CGU or group of CGUs to which goodwill is allocated should not be larger than the segments as defined in the segment reporting standard. This basic requirement is very important in the evaluation of CGU aggregation. So the relationship between the number of CGUs and the number of business segments should be scrutinised carefully.

Table 6.2 shows that there is little evidence of significant variations in different clusters pertaining to the relationship between the number of CGUs and business segments for the first three years of transition to IFRS. In each year, percentages of firms that selected a number of CGUs equal to or higher than the number of business segments were much lower than that of firms that defined fewer CGUs than business segments and failed to have effective disclosure. This suggests an abnormality in the results of the final sample under the basic requirement and raises the high possibility of aggregating inappropriate CGUs.

About 10% of each year's sample firms specified that the number of CGUs was higher than the number of business segments. Nearly 20% of each year's sample firms defined the number of CGUs as being equal with the number of business segments. So under the requirement of the accounting standard, it is likely that these firms were aligned in two clusters, suggesting a lower risk of CGU aggregation.

The highest proportion of sample firms defined fewer numbers of CGUs than business segments (slight increase) in the multi-year dataset, i.e. 39.1% in 2005, 45.4% in 2006 and 48.9% in 2007. In comparison with the basic precepts, this suggests a higher risk of inappropriate CGU aggregation in the process of testing goodwill impairment.

Consequently, there may be a high possibility that reporting firms will underestimate impairment losses as a strategy to overstate earnings.

An obvious concern involves reporting firms that provided no effective disclosures in relation to the number of CGUs they defined. The rate of non-conformity with the basic requirement of the accounting standard was rather high, although it fell, from 30.4% in 2005 to 25.7% in 2006 and 20.5% in 2007. No further comments on this issue need to be offered, because the consequences of these compliance failures are consistent.

Table 6.2: Business Segments and CGU Aggregation by Sector

Sector	No. of CGU > No. of Segments (No. of firms)			No. of CGU = No. of Segments (No. of firms)			No. of CGU < No. of Segments (No. of firms)			No Effective Disclosure (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	5	10	8	8	11	14	21	36	39	14	16	16
Financials	3	2	2	4	4	4	7	11	15	2	7	4
Telecommunications & Services	6	9	11	11	15	12	14	27	27	16	18	12
Materials & Industrial Goods	1	1	3	5	8	11	6	12	18	8	8	5
Utilities, Energy & Construction	3	7	9	3	5	7	15	27	30	9	15	17
TOTAL (n)	18	29	33	31	43	48	63	113	129	49	64	54
<i>Percentages in each year</i>	<i>11.2%</i>	<i>11.6%</i>	<i>12.5%</i>	<i>19.3%</i>	<i>17.3%</i>	<i>18.2%</i>	<i>39.1%</i>	<i>45.4%</i>	<i>48.9%</i>	<i>30.4%</i>	<i>25.7%</i>	<i>20.5%</i>

6.3.3. Cash Generating Unit to Segment Ratio

In evaluating the accuracy of the CGU aggregation phenomenon, the ratio of CGUs to business segments provides insights into this issue, which is illustrated in Table 6.3. There is evidence of insignificant change in the time series in relation to the average number of controlled subsidiary entities, business segments, defined CGUs and ratio of CGUs to business segments.

The data in Table 6.3 reveal that ratios of defined CGUs to business segments in the multiple dataset were lower than one, i.e. 0.76 CGUs per business segment in 2005, 0.67 in 2006 and 0.69 in 2007. Consistent with the data in Table 6.2, the majority of reporting firms defined fewer CGUs than business segments. This suggests that some CGUs involved more than one business segment or some business segments did not have any CGUs. This raises the high possibility that inappropriate CGU aggregation existed in the first three years after Hong Kong's implementation of IFRS.

In addition, the average number of defined CGUs and business segments were contrasted with the average number of controlled entities in each industry sector and the whole population. This strengthens the possibility that inappropriate CGU aggregation existed in the research period.

Table 6.3: Analysis of Controlled Entities, Business Segments and CGUs by Sector

Sector	Average Number of Controlled Entities			Average Number of Business Segments			Average Number of Defined CGUs			Ratio of CGUs to Business Segments		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	40.69	37.96	38.92	3.42	3.27	3.30	2.44	2.02	2.15	0.71:1	0.62:1	0.65:1
Financials	42.38	50.83	49.76	4.19	4.54	4.52	2.93	3.00	2.76	0.70:1	0.66:1	0.61:1
Telecommunications & Services	30.36	29.51	30.92	2.96	2.99	2.74	2.65	2.43	2.30	0.89:1	0.81:1	0.84:1
Materials & Industrial Goods	22.10	26.59	25.86	3.25	3.10	3.22	2.42	1.90	1.78	0.74:1	0.61:1	0.55:1
Utilities, Energy & Construction	47.30	47.15	45.59	3.34	3.62	3.45	2.23	2.33	2.60	0.67:1	0.64:1	0.75:1
TOTAL (n)	36.76	37.53	37.83	3.33	3.37	3.31	2.51	2.27	2.29	0.76:1	0.67:1	0.69:1

6.3.4. Method Employed

In order to conduct goodwill impairment testing, one key technical requirement is to compare the carrying amount of CGU assets with the recoverable amount. The CGU carrying amount is calculated on the sum of each asset's book value in the CGU. The recoverable amount is determined according to which method is adopted for the purpose of goodwill impairment testing. This research investigated the selection of method employed for estimating the CGU recoverable amount. The frequencies of each method are illustrated in Table 6.4 using the descriptive statistics technique.

Value in use was the preferred choice of the majority of reporting firms in all three years. Specifically, 82% of the sample firms selected value in use in 2005, 85.5% in 2006 and 88.6% in 2007 (an increase, though slight). Under the technical requirements of HKAS 36, these firms are required to disclose detailed and abundant information in relation to the DCF model including future cash flows, discount rates, long-term growth rates and terminal values which support the estimation of a CGU recoverable amount. Each variable in the DCF model that involves subjective assumptions has produced endless controversies in the extant literature.

A small number of firms adopted the fair value and mixed method (combination of fair value and value in use) approaches in projecting the recoverable amount of CGU assets. These firms, which chose fair value as the basis of estimating the CGU recoverable amount, are required to disclose less financial information pertaining to goodwill impairment.

Strikingly, some sample firms chose to ignore to report the method employed for measuring the CGU recoverable amounts. These firms were judged not to have aligned with the basic technical requirements of HKAS 36. The rate of non-

compliance decreased in the multi-year dataset, i.e. from 13% in 2005, to 8% in 2006 and 6% in 2007. It seems that a professional accounting framework was not meaningful to these firms. As a result, the process of goodwill impairment testing could not be carried out and financial report users could not assess the robustness of the process.

Consistent with prior studies conducted in other jurisdictions such as Australia, Malaysia and New Zealand, value in use is the dominant approach in the initial transition to IFRS. Under the technical requirements of the standard of goodwill impairment, the DCF should be adopted. Some key variables of this model such as discount rates, long-term growth rates and forecast periods will be scrutinised in the following sections.

Table 6.4: Method Employed to Determine Recoverable Amount of CGUs

Sector	Fair Value Method (No. of firms)			Value in Use Method (No. of firms)			Mixed Method (No. of firms)			Method not Disclosed (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	1	1	1	41	66	71	1	1	1	5	5	4
Financials	-	1	1	14	19	21	-	3	2	2	1	1
Telecommunications & Services	2	3	4	37	56	53	3	4	1	5	6	4
Materials & Industrial Goods	-	-	-	15	25	35	1	1	1	4	3	1
Utilities, Energy & Construction	-	1	2	25	47	54	-	1	2	5	5	5
TOTAL (n)	3	6	8	132	213	234	5	10	7	21	20	15
<i>Percentages in each year</i>	<i>1.9%</i>	<i>2.4%</i>	<i>3.0%</i>	<i>82.0%</i>	<i>85.5%</i>	<i>88.6%</i>	<i>3.1%</i>	<i>4.0%</i>	<i>2.7%</i>	<i>13.0%</i>	<i>8.0%</i>	<i>5.7%</i>

6.3.5. Discount Rate

In estimating the recoverable amount of CGU, given a highly reliable DCF model, discount rate plays a very important role in transforming future cash flows to present values. Under the technical requirements, discount rate should be pre-tax rate and show variation across defined areas where business risk inherently differs. The issue of discount rate also produces controversies in estimating the CGU recoverable amount.

The high frequency with which sample firms disclosed the application of a blanket whole of firm discount rate can be seen in Table 6.5. Some firms that disclosed the use of a single discount rate assigned goodwill to only one CGU. Other firms segmented business with inherently similar characteristics for the convenience of reporting and management, leading to the implementation of a single whole firm rate. About 64% of firms chose single discount rates for all defined CGUs in 2005, 66% in 2006 and 67% in 2007.

It is easy to understand why sample firms that had only one CGU applied a single discount rate. However, many firms allocated goodwill to more than one CGU and the risk characteristics of their CGUs are heterogeneous rather than homogenous. This raises concerns not only because the disclosure of a single discount rate removes valuable information pertaining to intra firm variation, but also because it heightens the risk that individual CGUs have been subjected to impairment testing at inappropriate discount rates.

A small proportion of firms provided disclosures of dubious values, indicating a range of rates employed across the firm, but this did not assist financial statement users in understanding the central tendency among those rates, and did not give them strong

insights into management evaluations in relation to CGU risk levels. Specifically, 5.8% of firms selected discount rates within range in 2005, 6.3% in 2006 and 8.3% in 2007.

Notably, there is an infrequency with which firms disclosed multiple discount rates for various defined CGUs, about 10% of sample firms in each year; various inherent risks across CGUs were detected by sample firms. As a result, impairment testing results appear the most reliable in comparison with other chosen methodologies.

Troublingly, a high proportion of firms stated no effective discount rate method in the multi-year dataset. Specifically, the rate of non-disclosure decreased slightly, from 19% in 2005 to 16.6% in 2006 and 11.6% in 2007. Evidently, where there were no data of discount rate, the present values could not be discounted from future cash flows even though data of long-term growth rates, forecast periods and future cash flows were available and reliable. These firms were assessed as not conforming to the technical requirements of HKAS 36.

Table 6.6 shows the detailed numbers of discount rates in minimum, maximum and average by industry sector. The lowest, highest and average discount rates in 2005, 2006 and 2007 were 1.4%, 18.3% and 9.17%; 3.8%, 35% and 9.97%; and 2.6%, 52% and 11.08% respectively. However, after checking Histogram and Boxplot, some outliers⁴⁶ were excluded from Table 6.6, because their results materially affect the final results.

Remarkably, a wide range of discount rates was selected, between 1.4% and 18.3% in 2005, between 3.8% and 25.8% in 2006, and between 2.6% and 25.9% in 2007. In

⁴⁶ Shell Electric (Consumer Goods & Conglomerates) used a single discount rate of 35% in 2006 and 2007. Uni-Bio Group (Consumer Goods & Conglomerates) applied a range of discount rates between 35% and 52% in 2007.

some cases, defined discount rates appeared to be extremely low; for example, the financials firm that disclosed the use of a pre-tax discount rate of 1.4%, a rate lower than common estimates of the long-run risk-free rate. The application of aggressively low discount rates results in overestimating the recoverable amount of CGU and consequently potential goodwill impairment losses are deferred or avoided.

As can be seen for Table 6.6, average discount rates employed by sample firms increased in multi-year dataset. In which average discount rates chosen in the following years are higher than in the previous years.

Table 6.5: Discount Rate Methodology
(Value in Use and Mixed Method Only)⁴⁷

Sector	Multiple Explicit Discount Rates (No. of firms)			Single Explicit Discount Rate (No. of firms)			Range of Discount Rates (No. of firms)			No Effective Disclosure (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	7	9	10	22	43	45	6	7	11	7	8	6
Financials	3	4	8	8	12	11	1	1	1	2	5	3
Telecommunications & Services	3	7	6	27	43	40	1	1	2	9	9	6
Materials & Industrial Goods	-	-	3	13	22	30	-	1	1	3	3	2
Utilities, Energy & Construction	2	4	4	18	28	36	-	4	5	5	12	11
TOTAL (n)	15	24	31	88	148	162	8	14	20	26	37	28
<i>Percentages in each year</i>	<i>10.9%</i>	<i>10.8%</i>	<i>12.9%</i>	<i>64.2%</i>	<i>66.4%</i>	<i>67.2%</i>	<i>5.8%</i>	<i>6.3%</i>	<i>8.3%</i>	<i>19.0%</i>	<i>16.6%</i>	<i>11.6%</i>

⁴⁷ Of the 161 firms in 2005, 132 used the value in use method and five applied the mixed method; of the 249 firms in 2006, 213 used the value in use method and 10 applied the mixed method; of the 264 firms in 2007, 234 used the value in use method and seven applied the mixed method.

Table 6.6: Discount Rate Disclosures
(Value in Use and Mixed Method Only)

Sector	Min. Discount Rate (Pre-tax %)			Max. Discount Rate (Pre-tax %)			Average Discount Rate (Pre-tax)						
										Δ bps		Δ %	
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2006	2007	2006	2007
Consumer Goods & Conglomerates	4.13	3.80	2.60	18.30	25.00	23.70	9.58	9.08	10.25	-50.30	117.43	-5.2%	12.9%
Financials	1.40	4.78	3.10	17.80	25.80	25.90	8.44	9.21	9.26	76.38	5.80	9.0%	0.6%
Telecommunications & Services	4.50	4.20	5.00	17.00	23.50	22.36	9.24	10.72	12.03	148.49	130.32	16.1%	12.2%
Materials & Industrial Goods	4.68	5.00	4.68	12.00	20.00	20.00	7.72	9.36	10.77	163.66	141.05	21.2%	15.1%
Utilities, Energy & Construction	5.00	5.00	5.00	15.23	19.23	20.00	9.73	10.42	10.94	68.73	52.09	7.1%	5.0%
TOTAL (n)	1.40	3.80	2.60	18.30	25.80	25.90	9.17	9.84	10.80	67.12	96.23	7.3%	9.8%

6.3.6. Growth Rate

In the discounted cash flow model, long-term growth rate is used to measure terminal value. The terminal values together with future cash flows are discounted for estimating the recoverable amount of CGU. Some weaknesses existed in the growth rate disclosures in the sample firms in the first three years after Hong Kong's implementation of IFRS; these are revealed in Tables 6.7 and 6.8.

Surprisingly, an alarmingly high rate of non-compliance with the technical requirements of HKAS 36 by not disclosing effective long-term growth rates slightly decreased for the reporting firms in all three years, i.e. 73% in 2005, 72% in 2006 and 67% in 2007. Because there was no data for long-term growth rates, terminal values could not be calculated, and consequently the results of present values and impairment losses (if any) are unlikely.

A high proportion of firms selected single long-term growth rates for all defined CGUs despite the fact that there are different characteristics and inherent risks across CGUs. Specifically, 19.7% of firms chose single growth rates in 2005, compared to 18.8% in 2006 and 23.2% in 2007. Therefore, the reliability of the goodwill impairment testing results is questionable.

About 6% of the sample firms in each year applied multiple growth rates for various defined CGUs. These firms were judged to have taken into account aspects of the products, industries or country or countries in which the CGU operates, or for the market in which the CGU is used. The reliability of this disclosure is regarded to be the highest in comparison with other disclosures.

A small number of firms disclosed growth rate in a range of values. This disclosure produced unpersuasive results of the recoverable amount of CGU assets and impairment losses (if any).

The lowest, highest and average growth rates in 2005, 2006 and 2007 were 0%, 13% and 3.11%; -1%, 45% and 3.91%; and 0%, 185% and 7.2% respectively. However, after testing Histogram and Boxplot, some outliers⁴⁸ were excluded and the final results are illustrated in Table 6.9.

A growth rate of 0% was considered to be the lowest point (except one firm in Consumer Goods & Services recorded -1% in 2006). Dispersions of growth rate applied by firms in each year were different with 13% in 2005, 20% in 2006 and 26.7% in 2007. Using too high long-term growth rates can lead to overestimating the CGU recoverable amount, and consequently avoid impairment charges and reduce the reliability of the DCF model.

Table 6.8 shows that average growth rate applied by sample firms increased in the multi-year dataset. In which the increase rates of following years are higher than that of previous years.

According to paragraph 33c, growth rate should be steady or declining for subsequent years of the projection period. Strikingly, the majority of firms chose steady rather than declining growth rates for subsequent years after the end of the projection period. This suggests that selection of growth rates is not quite reasonable in practice.

⁴⁸ In 2006, New Focus Auto (Consumer Goods & Conglomerates) used a single terminal value growth rate of 45%. In 2007, Code 690: Uni-Bio Group (Consumer Goods & Conglomerates) applied a single growth rate of 185%; Superb Summit (Consumer Goods & Conglomerates) used a single growth rate of 32%; Hi Sun Tech (Telecommunications & Services) applied a range of growth rates between 15% and 45%; Wasion Group (Materials & Industrial Goods) used a single growth rate of 22.4%.

Table 6.7: Growth Rate Methodology
(Value in Use and Mixed Method Only)

Sector	Multiple Explicit Growth Rates (No. of firms)			Single Explicit Growth Rate (No. of firms)			Range of Growth Rates (No. of firms)			No Effective Disclosure (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	3	4	5	6	12	18	-	4	2	33	47	47
Financials	1	1	4	6	9	9	-	-	-	7	12	10
Telecommunications & Services	4	7	5	10	11	15	-	3	2	26	39	32
Materials & Industrial Goods	1	-	-	4	5	10	-	1	-	11	20	26
Utilities, Energy & Construction	-	1	1	1	5	4	1	-	4	23	42	47
TOTAL (n)	9	13	15	27	42	56	1	8	8	100	160	162
<i>Percentages in each year</i>	<i>6.6%</i>	<i>5.8%</i>	<i>6.2%</i>	<i>19.7%</i>	<i>18.8%</i>	<i>23.2%</i>	<i>0.7%</i>	<i>3.6%</i>	<i>3.3%</i>	<i>73.0%</i>	<i>71.7%</i>	<i>67.2%</i>

Table 6.8: Growth Rate Disclosures
(Value in Use and Mixed Method Only)

Sector	Min. Growth Rate (%)			Max. Growth Rate (%)			Average Growth Rate (%)						
	2005	2006	2007	2005	2006	2007	2005	2006	2007	Δ bps		Δ %	
										2006	2007	2006	2007
Consumer Goods & Conglomerates	0.00	-1.00	0.00	8.30	9.00	21.00	2.45	2.80	3.48	35.26	67.56	14.4%	24.1%
Financials	0.00	0.00	0.00	13.00	14.00	8.00	4.17	3.55	3.46	-61.60	-9.63	-14.8%	-2.7%
Telecommunications & Services	0.00	0.00	0.00	10.00	20.00	15.60	3.53	4.16	3.73	63.69	-43.10	18.1%	-10.4%
Materials & Industrial Goods	0.00	0.00	0.00	6.80	5.00	8.00	2.19	1.75	3.22	-44.00	147.22	-20.1%	84.1%
Utilities, Energy & Construction	0.00	0.00	0.00	5.00	5.00	26.76	1.75	2.42	7.45	66.67	503.11	38.1%	208.2%
TOTAL (n)	0.00	-1.00	0.00	13.00	20.00	26.76	3.11	3.25	3.99	13.50	74.61	4.3%	23.0%

6.3.7. Forecast Period

The forecast horizon in the DCF model was investigated for evaluating the compliance levels and disclosure quality as well as variations through the years pertaining to its disclosure under HKAS 36.

Data in Table 6.9 show that a high frequency of firms employed blanket whole of firm single forecast horizons for all specified CGUs, i.e. 75.9% in 2005, 78.5% in 2006 and 82.6% in 2007.

A low percentage of firms (about 3% in each year) applied different forecast periods for various CGUs (multiple forecast period), which reflect variations of prospective business conditions. Also, a small number of firms chose a range of forecast periods for defined CGUs in the DCF model.

Surprisingly, a high proportion of firms were unable to state the length of forecast period. However, the rate of non-compliance in relation to forecast period decreased slightly over the period, from 18.2% in 2005 to 15.7% in 2006 and 10.8% in 2007. Assuming that discount rates, growth rates and terminal values were available and reliable, estimating the recoverable amounts of CGU and impairment losses in the DCF model is achievable.

The minimum, maximum and average forecast periods in 2005, 2006 and 2007 were 1 year, 40 years and 6.93 years; 1 year, 50 years and 6.81 years; and 1 year, 50 years and 6.72 years respectively. After checking Histogram and Boxplot, some outliers⁴⁹

⁴⁹ In 2005, Tianjin Dev (Consumer Goods & Conglomerates) and Chong Hing Bank (Financials) disclosed a single forecast period of 40 years. In 2006, Public Fin Hold (Financials) used a single forecast period of 50 years and Tianjin Dev (Consumer Goods & Conglomerates) applied a single forecast period of 40 years. In 2007, Public Fin Hold (Financials) used a single forecast period of 50 years; Tianjin Dev (Consumer Goods & Conglomerates) applied a single forecast period of 40 years.

were excluded. Some reporting firms in all industry sectors reported very long forecast periods. It is a fact that the longer the forecast period, the more inaccurate future cash flows and the more imprecise the recoverable amount of CGU assets. Future cash flow is hard to project accurately after a five-year period since there are many factors that change very quickly, especially in times of financial crisis.

As can be seen from Table 6.10, average forecast periods projected by sample firms slightly fluctuated in the multi-year dataset. On average, the forecast period presented was more than six years in each year. As stated paragraph 33, projections based on budgets or forecasts should cover a maximum five-year period, unless a longer period can be justified. However, some firms employed a longer forecast period than required, and no explanations were given in the note-forms of consolidated financial statements.

**Table 6.9: Disclosure of Forecast Period Method by Sector
(Value in Use and Mixed Method Only)**

Sector	Multiple Forecast Period (No. of firms)			Single Forecast Period (No. of firms)			Range of Forecast Period (No. of firms)			No Effective Disclosure (No. of firms)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	2	2	3	34	55	59	2	4	4	4	6	6
Financials	1	2	2	10	12	16	1	1	1	2	7	4
Telecommunications & Services	-	3	-	30	49	49	1	-	-	9	8	5
Materials & Industrial Goods	1	-	-	13	25	34	-	-	-	2	1	2
Utilities, Energy & Construction	-	-	3	17	34	41	-	1	3	8	13	9
TOTAL (n)	4	7	8	104	175	199	4	6	8	25	35	26
<i>Percentages in each year</i>	<i>2.9%</i>	<i>3.1%</i>	<i>3.3%</i>	<i>75.9%</i>	<i>78.5%</i>	<i>82.6%</i>	<i>2.9%</i>	<i>2.7%</i>	<i>3.3%</i>	<i>18.2%</i>	<i>15.7%</i>	<i>10.8%</i>

Table 6.10: Disclosure of Forecast Period by Sector
(Value in Use and Mixed Method Only)

Sector	Min. Forecast Periods (years)			Max. Forecast Periods (years)			Average Forecast Periods (years)						
	2005	2006	2007	2005	2006	2007	2005	2006	2007	Δ bps		Δ %	
										2006	2007	2006	2007
Consumer Goods & Conglomerates	1	1	1	20	20	21	6.09	5.64	5.77	-45.29	12.76	-7.4%	2.3%
Financials	1	1	1	20	24	24	6.77	7.11	6.33	33.44	-77.38	4.9%	10.9%
Telecommunications & Services	1	1	1	10	25	24	4.92	6.07	5.53	114.80	-53.67	23.3%	-8.8%
Materials & Industrial Goods	1	1	1	20	26	25	5.43	7.04	7.03	161.14	-1.06	29.7%	-0.2%
Utilities, Energy & Construction	3	1	1	25	24	29	9.88	7.46	7.57	-242.52	11.73	-24.5%	1.6%
TOTAL (n)	1	1	1	25	26	29	6.33	6.40	6.36	6.87	-3.90	1.1%	-0.6%

6.4. Conclusion

The IFRS framework for goodwill accounting, reporting and impairment testing has produced a very high degree of complexity and detail in comparison with the previous regime. The disclosures required under the accounting standards are highly intricate and add more cost and risk to the task of preparing and auditing financial reports. Nevertheless, it can be argued that the transparency level where disclosures are prepared in accordance with the requirements of this new framework far exceeds that which resulted from the application of the previous regime (Carlin & Finch, 2010b).

The purpose of this research is to evaluate the compliance levels and disclosure quality pertaining to goodwill impairment on the part of listed firms in the HKEx in the first three years of IFRS implementation. However, unlike the sample firms in the previous chapter where first-time adopters existed in all three years (matched sample), a sample of different listed firms (unmatched sample) was selected for evaluating the practice of compliance with regard to goodwill impairment over the three-year period after IFRS implementation.

This research draws upon data from the HKEx. Considering that Hong Kong is a jurisdiction with strong institutional and regulatory frameworks, which would promote compliance with promulgated mandatory rules of goodwill impairment, it could be expected that the implementation of a consistent set of rules would guarantee consistency in practice. However, practice is very different from theory.

With the same findings as the previous chapter relating to goodwill impairment compliance, this chapter concludes that the levels of compliance and quality of disclosure pertaining to goodwill impairment increased slightly over the three-year period after IFRS adoption. Even though there was an improvement in complying

with HKAS 36 on the part of HKEx reporting firms, there was an alarmingly high rate of non-compliance and poor disclosure quality among the unmatched sample of listed firms. The high level of non-compliance existed in all phases of the goodwill impairment testing process. Thus this raises the hypothesis that lax alignment with the accounting standards, including HKAS 36, is a feature of early implementation of IFRS on the part of reporting firms.

Goodwill impairment testing is a highly complicated process which involves a series of intricate procedures, from calculating the CGU carrying amount and values of goodwill allocation to each CGU, to estimating the recoverable amount of CGU assets based on subjective assumptions when a firm selects the fair value approach or value in use or both, and then comparing the carrying amount with the recoverable amount for determining the magnitude of impairment losses (if any). By examining the disclosures of goodwill impairment in the note-form of financial statements, misstatements existed in every single procedure of goodwill impairment. This suggests that there is a high probability of incorrect impairment charges. It also raises concerns regarding non-compliance levels and poor disclosure quality pertaining to goodwill impairment of the sample firms in Hong Kong.

There may be some explanations for the above results. Maybe the requirements of IFRS-based goodwill impairment reporting, accounting and testing are so intricate that financial statement preparers do not have adequate competence to follow them. The other reason may be explained on the basis that precepts are very vague and unclear so preparers do not know how to apply them in practice. So there is a high possibility of stubborn unwillingness to yield to the edicts of the mandated reporting framework.

It is a fact that levels of non-compliance are high in the first years of IFRS adoption. This reduces the reliability of both goodwill impairment testing results and financial statements. For a group of financial statement users, it is really difficult to evaluate the robustness of the goodwill impairment testing regime.

The results of this study are strikingly reminiscent of other findings shown in analogous research undertaken in other jurisdictions such as Australia, the United Kingdom, Malaysia and New Zealand. Thus the non-compliance rates of the IFRS-based goodwill impairment testing regime have spread beyond borders and will be discussed into the future.

Given that compliance with the accounting standard is compulsory by law, evidence of non-conformity together with a lack of evidence regarding enforcement activities from regulatory bodies would represent a basis for substantial concerns about the efficacy of the financial regulatory framework operating in Hong Kong, including the role and impact of the financial audit.

Carrying assets including goodwill at no more than their recoverable amount is ideal. Furthermore, it is evident that goodwill impairment testing outweighs amortising goodwill over its useful life. Throughout this research, the efficacy of the financial regulatory framework of goodwill impairment is very low. This suggests that transforming an ideal into practice is not straightforward. This suggests that policy makers should consider this matter more seriously in the future and work towards an improved global reporting framework.

Chapter 7: Discount Rate Analysis

7.1. Introduction

Goodwill and the standards that require their measurement and reporting are commonly viewed as some of the most controversial aspects of financial reporting (Carlin *et al.*, 2009c). The endless controversy essentially arises from the nature of goodwill, which is almost impossible to quantify. Thus, it has been very difficult to find an accurate approach to measuring goodwill consumption.

A tangled web of contradictory treatments has existed in the accounting standards through time and across a range of jurisdictions. These have included the capacity to eliminate goodwill immediately against capital, reserve or retained earnings; requirements that goodwill be capitalised and kept unchanged in the balance sheet; and requirements that goodwill be capitalised and amortised against periodic earnings with various amortisation regimes (Gibson & Francis, 1975; Carnegie & Gibson, 1987; Seetharaman *et al.*, 2004; Davis, 2005; Carlin *et al.*, 2009b). The adoption of goodwill impairment under an IFRS-based financial reporting framework is regarded as a revolution with dramatic changes in accounting for and the reporting of goodwill.

Relating to the theme of goodwill impairment, there is evidence of: the exercise of discretion in defining CGU aggregation; the allocation of acquisition purchase consideration between different asset classes and across operating units; the exercise of judgement in the selection of appropriate market-based benchmarks and key input parameters including long-term growth rates and risk adjusted discount rates (Lonergan, 2006). Each of these elements potentially has a big impact on the robustness and results of impairment evaluation exercises conducted by reporting

firms, especially when value in use is employed for estimating the recoverable amount of CGU assets. Hence, evaluating the best result is challenging not only for financial statement users, but for auditors as well.

In accordance with the goodwill impairment standard, the recoverable amount of an asset or CGU assets should be estimated and then compared with its carrying amount. If the asset's recoverable amount is less than its carrying amount, impairment loss is said to have occurred. In order to determine the asset's recoverable amount, two methods should be employed, i.e. fair value less costs to sell and value in use. While in theory either may be applied, a range of considerations, including the absence in many cases, of suitable benchmark data, have resulted in a significantly higher frequency of value in use being applied by reporting firms (Carlin & Finch, 2008b).

In the application of the value in use approach, discount rate as a key variable is regarded to be crucial for transforming future cash flows into present values. Present values of future cash flows can be highly sensitive even to small variations in discount rates.

The dominance of the value in use method in measuring the CGU recoverable amount in goodwill impairment testing has been revealed in the extant literature in different jurisdictions in countries applying the IFRS-based goodwill impairment framework including Australia, New Zealand, Singapore, Malaysia and even Hong Kong. In employing this method, a series of subjective assumptions should be disclosed in the note-form of consolidated financial statements under the technical requirements of the goodwill impairment standard, including discount rates. So the opportunity to evaluate the variance between observed discount rates and independent discount rates in the first three years after Hong Kong's implementation of IFRS is entirely feasible.

Consequently, this chapter collects evidence on the variations of discount rate selections in goodwill impairment testing, and on the degrees to which asset impairment regimes are flawed in giving financial statement preparers fertile ground to exercise discretion in goodwill impairment. Based on discount rate selection, the exercise of discretion in setting impairment losses and retained earnings in the process of forming financial statements on the part of reporting firms will be revealed.

This chapter is structured as follows. Section 7.2 describes the technical background relating to discount rate. Section 7.3 gives the findings of discount rate variations. Section 7.4 contains some concluding reflections on the results.

7.2. Technical Background

All issues relating to recording value of asset purchased, revaluating assets for presenting the fair value of assets, recording impairment losses and recoverable amounts of assets, and others are dealt with in the contents of the accounting standard of asset impairment of HKAS 36.

As an asset of an entity, goodwill acquired in a business combination is also under control and subject to evaluation for impairment under the accounting standard of asset impairment. However, unlike other assets, goodwill has been the subject of controversy since its conception. It has been depicted variously as embarrassing, risky, impalpable, unreliable, undesirable and imponderable (More, 1891; Dicksee, 1897; Densham, 1898; Guthrie, 1898). Before the implementation of IFRS, several accounting treatments for goodwill were applied by reporting firms but financial statement preparers, financial reporting users and auditors found them unsatisfactory.

Since the adoption of the IFRS goodwill reporting framework on 1 January 2005, scientists and practitioners have compiled a long list of inconsistent and incompatible explanations of, and prescriptions for, the valuation and reporting of goodwill (Bloom, 2007). Conducting impairment of assets in general and goodwill in particular is challenging for financial statement preparers, analysts and financial statement users because many requirements in the accounting standard are unclear and difficult to apply in practice. These include the identification of CGUs, allocation of goodwill to defined CGUs, and a series of subjective assumptions relating to the methods for estimating the recoverable amount of CGU assets (Caplan & Marris, 2002; Hayn & Hughes, 2006; Wines *et al.*, 2007; Seetharaman *et al.*, 2008).

According to Hui & Ng (2006), the first step in the goodwill impairment testing process is to identify individual assets or CGU assets. In practice, cash flows are produced largely by groups of assets used together within a firm, not by individual assets. When the recoverable amount cannot be calculated for an individual asset, it is computed for the groups of assets that generate cash inflows that are largely independent of the cash inflows from other assets or groups of assets. A group of assets is known as a cash generating unit or CGU. Thus, a CGU is understood to be the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets.⁵⁰

The value of assets associated with CGUs has been known as the carrying amount or book value. The carrying amount of CGU assets consists of the sum of the book values of individual assets in that group and all those assets that together generate cash inflows that are independent of other cash inflows. The carrying amount is defined as the amount at which an asset is recorded at cost after deducting any accumulated depreciation (amortisation) and accumulated losses (Hui & Ng, 2006).

⁵⁰ Paragraph 6 of HKAS 36.

Goodwill does not generate cash flows independently from other assets or groups of assets, so it should be allocated to each of the CGUs that are expected to benefit from the synergies of the acquisition. However, to avoid inappropriate CGU aggregation, each CGU to which the goodwill is allocated should not be larger than a segment determined in the segment reporting standard.⁵¹

In the process of impairment testing, estimates of the recoverable amount of CGU assets should be carried out and then compared with the CGU carrying amount to decide whether or not impairment expenses exist. Academically, an entity can choose either fair value less costs to sell, or value in use, or both. In the extant literature, value in use is the dominant and approach employed by reporting firms.

To estimate the CGU recoverable amount by employing the value in use approach, a DCF valuation was adopted and is thought to be highly reliable in the valuation of assets. Based on feedback from the reporting firms, a series of parameters in this model, including future cash flows, long-term growth rates, discount rates and forecast periods, was given. HKAS 36 and analogue IAS 36 provide the precepts for denoting transparency of key inputs and assumptions in the DCF model for measuring the recoverable amount of CGU assets.

Much empirical evidence shows that reporting firms have low levels of compliance and poor disclosure quality pertaining to goodwill impairment in the first year after implementation of IFRS (Carlin *et al.*, 2007b; Khairi, 2008; Laili, 2008; Carlin *et al.*, 2008a). In the process of testing goodwill impairment, misstatements existed in every procedure. For example, reporting firms seemed to systematically define fewer CGUs than was appropriate, and failed to disclose basic and specific technical requirements

⁵¹ HKAS 14 – *Segment Reporting* is applicable for annual periods beginning on or after 1 January 2005, but before 1 January 2009. HKFRS 8 – *Operating Segments* will supersede HKAS 14 and be effective on or after 1 January 2009.

in the goodwill impairment standard. Reporting firms tended not to align with the accounting standard but a low percentage of firms fully adhered to the standard requirements, including the requirements relating to discount rates.

To estimate the CGU recoverable amount when a firm employs value in use in the process of goodwill impairment testing, future cash flow values are discounted to present values by a variable of discount rate. Discount rate variable plays a very important part in deciding the magnitude of present values, recoverable amounts, impairment losses and reported earnings. Under the technical requirements of HKAS 36, discount rates must be assigned to the risk characteristics of each CGU.

One important aspect of determining the discount rate is that it should have a pre-tax value. If a firm applies a post-tax discount rate, it should be converted into the pre-tax rate in order to be comparable. The pre-tax rate is the return that investors would require if they were to choose an investment that would generate cash flows, timing and a risk profile equivalent to those that the company expects to derive from the asset.⁵² In addition, the standard also emphasises that the discount rate should not reflect risks for which the future cash flow estimates have been adjusted in order to avoid double accounting.

However, the extant literature reveals that when value in use is chosen for estimating the recoverable amount of CGU assets, a high frequency of single discount rate for all CGUs is defined by reporting firms in different jurisdictions (Carlin *et al.*, 2007b; Khairi, 2008; Laili, 2008; Carlin *et al.*, 2008a), regardless of whether or not each CGU has different risk characteristics. Thus, there is a high possibility that „whole firm“ observed discount rates will be compared with „whole firm“ estimated discount rates.

⁵² Paragraph 56 of HKAS 36.

If a firm defines multiple CGUs and assigns different discount rates to CGUs (multiple explicit discount rates), undertaking comparable analysis is considered difficult since there is a greater challenge in estimating discount rates applicable to parts of the business, rather than to the business as a whole.⁵³ In other cases where the firm assumes a range of discount rates for CGUs,⁵⁴ it is not possible to compare the specific estimated discount rate with the range of discount rates. So this chapter only focuses on discount rates set by reporting firms which employed single discount rates for all defined CGUs in the process of goodwill impairment testing in the first three years after Hong Kong's transition to IFRS.

An investigation of the variance between observed discount rates and independently estimated discount rates in the consecutive time series will show a tendency towards either understatement or overstatement. To some extent, either understated or overstated discount rates have impacts on the reliability of outcomes of present values, the recoverable amount of CGUs, impairment losses and reported earnings. The next section sets out the dataset selection and the methodology used for the purpose of elucidating these issues.

7.3. Discount Rate Analysis

7.3.1. Appropriateness of Discount Rate

This chapter investigates variations between observed discount rates employed by reporting firms for the purpose of impairment testing and independently generated estimates of firm-specific risk-adjusted discount rates in the first three years after

⁵³ Company-specific betas are commonly available or can be independently calculated based on observed returns of companies' equity securities. Direct risk estimates for sub-elements for firms are not generally available.

⁵⁴ Some sample firms employed the large range of discount rates (big differences between minimum and maximum discount rates).

Hong Kong's implementation of IFRS. Data collected for the purpose of goodwill impairment testing also strengthened the findings of earlier studies on compliance levels and disclosure quality of first-time adopters and listed reporting firms in Chapters 5 and 6.

As stated in the previous section, there was a precondition that each sample firm only selected a single discount rate (the same discount rate for all defined CGUs). This means that each sample firm assumed the same risk characteristics of all defined CGUs even though discount rates applied were associated with the underlying risk characteristics of each defined CGU.⁵⁵

The fact is that goodwill is associated with one CGU only in some cases, meaning that for all practical purposes, only one selected discount rate will be disclosed for meeting the technical requirements of the goodwill accounting standard. However, data in Table 7.1 show that only 40% of sample firms in 2005, 52% in 2006 and 48% in 2007 defined only one CGU.

Strikingly, more than 10% of sample firms in the multi-year dataset failed to disclose the number of defined CGUs. Without defining the number of CGUs, assuming that these reporting firms employed value in use and selected suitable single discount rates, it was impossible to test goodwill impairment.

About 46% of the sample firms in 2005, 36% in 2006 and 39% in 2007 defined more than one CGU. It is a fact that when the number of defined CGUs increases, it becomes more difficult to accept the validity of the risk homogeneity proportion

⁵⁵ There is also the possibility that even where multiple CGUs are specified, their risk characteristics are homogeneous, in effect proving the application of a blanket discount rate for the purpose of impairment testing. This does not reduce the appropriateness of the research methodology applied in this chapter.

pertaining to discount rates employed for all CGUs in the process of goodwill impairment testing (Carlin & Finch, 2009b).

Table 7.1 provides evidence of a high possibility that sample firms selected inappropriate discount rates for all CGUs in the DCF model in the process of goodwill impairment testing.⁵⁶ This result is also consistent with the findings in some extant literature on using and selecting discount rates. In circumstances where there is clear proof of substantial intra firm risk variation, using blanket whole of firm discount rates is entirely inappropriate (Bierman, 1993).

⁵⁶ HKAS 36 requires that the discount rate be asset specific with respect to risk and independent of financing consideration (HKAS36. A19).

Table 7.1: Number of Defined CGUs by Industry Sector

Sector	1 CGU			2 CGUs			3 CGUs			4 CGUs			5 CGUs			>5 CGUs			No disclosure		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	11	25	22	3	7	10	2	5	1	-	-	1	-	1	2	2	-	1	4	5	8
Financials	4	5	7	-	-	-	2	2	2	1	-	-	1	1	1	-	-	-	-	1	1
Telecommunications & Services	8	19	20	7	10	11	3	3	1	1	1	-	1	2	2	1	1	2	4	5	4
Materials & Industrial Goods	3	9	14	3	5	9	2	2	2	-	-	-	-	-	-	-	1	1	4	4	3
Utilities, Energy & Construction	8	16	15	6	2	6	2	4	-	1	1	6	-	1	2	1	2	2	-	2	5
Total	34	74	78	19	24	36	11	16	6	3	2	7	2	5	7	4	4	6	12	17	21
<i>Percentage in each year sample</i>	<i>40%</i>	<i>52%</i>	<i>48%</i>	<i>23%</i>	<i>17%</i>	<i>23%</i>	<i>13%</i>	<i>11%</i>	<i>4%</i>	<i>3%</i>	<i>1%</i>	<i>4%</i>	<i>2%</i>	<i>4%</i>	<i>4%</i>	<i>5%</i>	<i>3%</i>	<i>4%</i>	<i>14%</i>	<i>12%</i>	<i>13%</i>

In the context of global market development, there has been a significant increase in the number of business combinations. As a result, goodwill acquired in a business combination as an asset plays a very important role and becomes more material in the total assets of a reporting firm. It is particularly important when it is benchmarked against reported before tax profits. Goodwill intensity represents a measure of the sensitivity of firms to changes in goodwill balance and earnings streams to potential impairment losses in particular (Carlin & Finch, 2008c).

The range of goodwill intensity in 2005, 2006 and 2007 was 26.54, 47.5 and 56.7 respectively. For the same years, the mean values were 0.56, 0.64 and 0.55 respectively. On average, the goodwill balance ranged between 55% and 64%, as large as net profit before tax. This suggests, to some extent, a small proportion of goodwill impairment could produce disproportionate impacts on the earnings of reporting firms.

Table 7.2 shows that more than 78% of firms in 2005, 73% in 2006 and 79% in 2007 (fluctuation) had goodwill intensity scores between zero and 1.0. This suggests a lower degree of sensitivity to write-down profits in the current period. About 7% of the sample firms in 2005, 13% in 2006 and 10% in 2007 had scores of goodwill intensity lower than zero. So any goodwill impairment losses will lead to further losses and make financial position and operational results more serious.

There was a slight decrease in goodwill intensity scores higher than 1.0 over the period, i.e. 15% of firms in 2005, 14% in 2006 and 11% in 2007. This shows a higher degree to the current period loss as a result of an impairment expense.

Clearly, the requirement to recognise an impairment loss against goodwill for some listed firms would result in a significant impact on reported earnings. As a result, it is

highly likely that some reporting firms may have selected lower than appropriate discount rates. Application of lower discount rates increases the likelihood that the estimate of the recoverable amount of CGU assets exceeds its carrying amount (book value) and increases the gap between the CGU carrying amount and its recoverable amount estimate.⁵⁷

⁵⁷ In some cases, opportunism may potentially lead to results in the opposite direction, via the application of excessive discount rates. Nevertheless, there is little available empirical evidence to prove the existence of this phenomenon in reporting firms conducting impairment testing in accordance with IFRS.

Table 7.2: Firm Goodwill Intensity by Industry Sector

Sector	<0			> 0 and < 1			> 1 and < 2			> 2 and < 3			> 3 and < 4			> and < 5			>5		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	-	4	6	19	34	34	3	3	2	-	1	-	-	-	2	-	-	-	-	1	1
Financials	-	-	-	8	8	10	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
Telecommunications & Services	3	8	5	15	25	29	3	3	4	3	2	1	-	2	1	-	-	-	1	1	-
Materials & Industrial Goods	2	2	1	10	16	26	-	2	-	-	-	1	-	1	1	-	-	-	-	-	-
Utilities, Energy & Construction	1	5	5	15	20	28	-	-	-	-	-	-	-	1	1	-	1	1	2	1	1
Total	6	19	17	67	103	127	6	8	6	3	3	2	-	4	6	-	2	1	3	3	2
<i>Percentage in each year sample</i>	<i>7%</i>	<i>13%</i>	<i>10%</i>	<i>78%</i>	<i>73%</i>	<i>79%</i>	<i>7%</i>	<i>6%</i>	<i>4%</i>	<i>4%</i>	<i>2%</i>	<i>1%</i>	<i>0%</i>	<i>3%</i>	<i>4%</i>	<i>0%</i>	<i>1%</i>	<i>1%</i>	<i>4%</i>	<i>2%</i>	<i>1%</i>

7.3.2. Discount Rate Variance

As discussed in the research methodology, independently generated discount rates were obtained by employing the Capital Asset Pricing Model (CAPM). The independently estimated discount rates were compared with observed discount rates employed by reporting firms to evaluate the variations. Through analysis, observed discount rates were judged to be either understated or overstated.

The fact is that any technique for estimating discount rates is potentially erroneous and interpretations of variations between independently estimated and observed reported discount rates need careful examination. To solve this issue, any observed actual discount rates that fell within a range between plus and minus 150 basis points (bps) of independently estimated discount rates were considered to be within a reasonable expected range and not consistent with the biased behaviour in discount rate selection. Any observed discount rates that lay within a range between 150 and 250 bps below expectation and in excess of 250 bps below expectation were classified as understated and vice versa.

According to Carlin & Finch (2010a), variations between estimated and reported discount rates of a magnitude of 150 bps cannot be interpreted as the output of estimation error, and may be suitable with the existence of systemic bias on the part of reporting firms in the discount rate selection for impairment testing.

Table 7.3 includes variations categorised by the magnitude and direction of the differential between independently estimated and observed discount rates across the final sample in the multi-year dataset. The data show the number of firms that fall into each variance category.

Less than a fifth of all reporting firms included in the final research sample in three consecutive years disclosed the use of discount rates in the range of 150 bps (reasonable expected range).⁵⁸ To some extent, the results of a DCF model combined with impairment losses (if any) are reliable.

More strikingly, in those instances where observed discount rates lay more than 150 bps from the estimated value, the dominant pattern was for observed discount rates to be lower rather than higher than the estimated value. More than a half of all reporting firms included in the final sample for the period from 2005 to 2007 understated observed discount rates whereas less than a third of reporting firms overstated discount rates within a reasonable range. This suggests that the sample reporting firms had a tendency to overstate present values and the recoverable amount of CGU assets, and consequently impairment expenses may be avoided or at least inappropriately deferred, with reported earnings inflated in the multi-year dataset.

Of the reporting firms that understated discount rates, the majority observed discount rates that lay in excess of 250 bps below expectation in the multi-year dataset. Similarly, of the reporting firms that overstated observed discount rates, the majority had discount rates that lay in excess of 250 bps above expectation.

Regarding to the industry by industry basis, firms in sectors of Consumer Goods & Conglomerates employed discount rates in the range of 150 bps. Firms in sector of Financials tend to use discount rates higher than 250 bps above expectation, whereas firms on sector of Materials & Industrial Goods tend to choose discount rates higher

⁵⁸ Determining the appropriate tolerance threshold is challenging, particularly considering the concerns that have been raised in literature about high standard error terms in CAPM-based estimates of the cost of equity capital. However, there is significant evidence to show that the dominant method employed by reporting firms to develop their cost of capital estimates is CAPM (Graham & Harvey, 2001; Bancel & Mitto, 2003). Thus, the application of CAPM in this research as a basis for cost of capital estimation likely corresponds properly to the methods employed internally by sample firms for this purpose, justifying the introduction of a tighter rather than a narrower tolerance threshold.

than 250 bps below expectations. Firms in Telecommunications & Services used discount rates in the range between 150 bps and 250 bps below expectation.

Table 7.3: Analysis of Discount Rate Variance by Industry Sector

Sector	Number of firms			>250 bps below expectation			>150 bps <250 bps below expectation			Within expected range (+/-150 bs)			>150 bps <250 bps above expectation			>250 bps above expectation		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	22	43	45	10	16	17	1	5	9	9	10	7	-	2	1	2	10	11
Financials	8	9	11	3	3	4	-	-	-	-	1	1	-	-	-	5	5	6
Telecommunications & Services	25	41	40	11	16	8	3	2	8	5	9	10	1	-	1	5	14	13
Materials & Industrial Goods	12	21	29	9	14	8	2	-	10	-	1	6	-	-	1	1	6	4
Utilities, Energy & Construction	18	28	36	10	13	13	1	3	6	2	3	3	3	1	4	2	8	10
Total	85	142	161	43	62	50	7	10	33	16	24	27	4	3	7	15	43	44
<i>Percentage in each year sample</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>	<i>51%</i>	<i>44%</i>	<i>31%</i>	<i>8%</i>	<i>7%</i>	<i>21%</i>	<i>19%</i>	<i>17%</i>	<i>17%</i>	<i>5%</i>	<i>2%</i>	<i>4%</i>	<i>17%</i>	<i>30%</i>	<i>27%</i>

A series of factors may explain reporting firms' tendency to understate discount rates in the multi-year dataset. One possibility is the existence of a systemic bias in the manner in which the independent discount rate estimates adopted for the purpose of the research were produced. Assuming that the methodology employed to estimate discount rates would be likely, on average, to increase discount rate estimates, the resulting pattern of variances between estimated and observed discount rates would likely be similar to those evident in Table 7.3.

However, this possibility was mitigated by a combination of scientific methodologies. First, values of beta employed for the purpose of supporting discount rates were checked through graphs of Scatterplot, Histogram and Boxplot for excluding outliers. Second, the risk-free rate, being a 10-year government bond (4.18% in 2005, 3.73% in 2006 and 3.44% in 2007), falls at the lower end of the generally accepted range. Third, in the process of transforming levered beta to unlevered beta by using the equation of Hamada (1972) and Damodaran (1994), lower unlevered betas (asset beta) were produced. Consequently, estimated risk adjusted discount rates were reduced and the chance of increasing independently generated discount rates by using this methodology was eliminated.

As a result, the application of understated discount rates may be explained by other factors, including those consistent with the exercise of discretion and opportunistic behaviour on the part of reporting firms. As can be seen in Table 7.4, only 15% of the total sample of firm goodwill in 2005, 20% in 2006 and 19% in 2007 had been subject to testing for impairment using discount rates that lay in excess of 150 bps above expectation. Meanwhile, up to 74% of the total sample of firm goodwill in 2005, 64% in 2006 and 65% in 2007 had been tested for impairment using discount rates that lay in excess of 150 bps below expectation. This suggests that the chance to avoid or

defer impairment losses was much higher than that to inflate or overstate impairment charges.

The dollar value of goodwill reported by sample firms whose disclosed discount rates lay between plus and minus 150 bps accounted for 11% of the total sample of firm goodwill in 2005, and 16% of the total sample in both 2006 and 2007. Evidently, a small value of goodwill dollars was subject to impairment in the reasonable expected range (less than a sixth of the total sample of firm goodwill).

Upon viewing the data on an industry sector, the effect of the potential distortion caused by large outlying value observation emerges. All industry sectors in the multi-year dataset had goodwill values to be tested for impairment employing discount rates in excess of 250 bps below and above expectation, but the number and goodwill value of sample firms that selected discount rates laying in excess of 250 bps below expectation was much higher than that laying in excess of 250 bps above expectation.

Table 7.4: Industry Sector Dollar Value of Goodwill by Discount Rate Variance

Sector	>250 bps below expectation			150 to 250 bps below expectation			Within expected range (+/-150 bps)			150 to 250 bps above expectation			>250 bps above expectation			Total Goodwill (\$HKD million)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Consumer Goods & Conglomerates	1,362	1,355	2,352	1	1,061	13,813	4,191	5,763	7,603	-	281	120	238	901	1,731	5,792	9,361	25,619
Financials	124	94	139	-	-	-	-	2,774	2,774	-	-	-	5,399	6,998	7,601	5,523	9,866	10,514
Telecommunications & Services	39,925	42,409	39,805	626	7,416	12,823	203	1,500	6,551	196	-	2,873	3,115	8,175	5,536	44,064	59,499	67,587
Materials & Industrial Goods	2,306	3,206	4,035	369	-	5,039	0	2,845	1,321	-	-	42	126	537	66	2,801	6,588	10,504
Utilities, Energy & Construction	1,286	3,122	1,604	24	296	2,812	2,324	2,277	1,437	482	69	1,542	78	1,355	3,694	4,195	7,118	11,089
Total	45,002	50,186	47,935	1,021	8,772	34,487	6,718	15,159	19,686	678	349	4,576	8,956	17,965	18,629	62,375	92,432	125,313
<i>Percentage in each year sample</i>	<i>72%</i>	<i>54%</i>	<i>38%</i>	<i>2%</i>	<i>10%</i>	<i>27%</i>	<i>11%</i>	<i>16%</i>	<i>16%</i>	<i>1%</i>	<i>1%</i>	<i>4%</i>	<i>14%</i>	<i>19%</i>	<i>15%</i>	<i>100%</i>	<i>100%</i>	<i>100%</i>

Goodwill intensity was also employed to provide the discount rate variance for reporting firms in the multi-year dataset, as set out in Table 7.5, below. These data yet again strengthen the very small proportion of the total sample of firm goodwill subjected to impairment testing employing discount rates in excess of expectations. It seems to be systematically the case that the highest percentage of goodwill value in the total sample fell into a goodwill intensity score from zero to 1.0, making up about 76% in 2005, 60% in 2006 and 63% in 2007, suggesting low degrees of sensitivity to write-down earnings in the current periods as results of impairment losses.

Consistent with Table 7.4, the dollar value of goodwill reported by firms whose disclosed discount rates lay in excess of 150 bps below expectation in all three years after the implementation of IFRS occupies the highest percentages. This suggests that the reporting firms tended to employ understated discount rates than appropriate for avoiding, or at least deferring, impairment losses. This is also consistent with a general aversion towards the forced recognition of impairment expenses that have been found in prior literature on the subject of the value relevance of goodwill write-offs (Carlin & Finch, 2010a).

With regard to the literature on goodwill write-offs, Francis *et al.* (1996) found that goodwill write-offs are highly likely to be undertaken when there are changes in management and the financial performance of an entity becomes more serious. Other research concluded that managers often delay the recognition of goodwill write-off (Hayn & Hughes, 2006; Ramanna & Watts, 2009). The application of goodwill write-offs is associated with opportunism in forming financial statements for the sake of reporting firms. However, limited value relevance has been generally suggested in the literature investigating the information value of annual amortisation expenses of goodwill (Moehrle & Reynolds-Moehrle, 2001; Hayn & Hughes, 2006).

In exploring other approaches to goodwill write-offs, some studies have suggested a material negative adverse feedback on the part of the capital market (Bartov *et al.*, 1998; Beneish & Vargus, 2002). The stock market seems to be inefficient in pricing the times when goodwill write-offs are decided by reporting firms. If the capital market responds to impairment expenses, the propensity to design a mechanism for minimising the forced impairment charges may be independent of the materiality of goodwill values of reporting firms (Carlin & Finch, 2009b).

Table 7.5: Discount Rate Variance and Goodwill Intensity (Value of Goodwill)

Goodwill Intensity (GI)	>250 bps below expectation			150 to 250 bps below expectation			Within expected range (+/-150 bps)			150 to 250 bps above expectation			>250 bps above expectation			Total Goodwill (\$HKD million)		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
GI >5	458	56	-	-	50	4,932	1,927	384	-	-	-	-	2,854	-	-	5,239	490	4,932
GI >4 and <5	-	-	-	-	-	-	-	2,774	-	-	-	-	-	483	225	-	3,258	225
GI >3 and <4	-	2,269	317	-	-	10,489	-	2,845	2,774	-	-	-	-	3,210	1,507	-	8,325	15,087
GI >2 and <3	3,314	4,380	3,134	-	-	-	-	-	-	-	-	-	170	-	3,577	3,483	4,380	6,711
GI >1 and <2	1,914	292	-	-	7,390	4,473	2,855	4,686	7,694	-	-	-	181	1,016	375	4,950	13,384	12,542
GI >0 and <1	38,570	42,574	43,977	831	1,333	14,299	1,935	2,393	7,923	678	281	565	5,749	8,761	12,583	47,763	55,342	79,348
GI <0	747	614	507	190	-	294	-	2,076	1,294	-	69	4,011	2	4,494	362	940	7,253	6,468
Total	45,002	50,186	47,935	1,021	8,772	34,487	6,718	15,159	19,686	678	349	4,576	8,956	17,965	18,629	62,375	92,432	125,313

7.4. Conclusion

Goodwill, its impairment and its disclosure as set out in the accounting standard is regarded as one of the most controversial aspects of financial reporting both in theory and practice. Furthermore, according to Hoogendoorn (2006), goodwill impairment testing and its disclosure are two of the most difficult issues in practice when IFRS implementation is employed.

Using the DCF model as a basis for estimating the recoverable amount of CGU assets when a reporting firm chooses value in use in the process of goodwill impairment testing, it is clear that the selection of discount rates is one of the most important factors in influencing the results of the impairment testing process. Evidently, the outcomes resulting from the application of the DCF model can be highly sensitive even to small variations in discount rates.

After a period of strong transactions pertaining to business combinations, goodwill occupies an increasingly significant material item on the consolidated balance sheets of large listed firms. Testing the robustness of goodwill impairment pursuant to the technical requirements of the IFRS framework is an intricate task, requiring the coordination of issues such as appropriate identification of CGU aggregation, appropriate allocation of goodwill to defined CGUs, calculation of proper future cash flows, adoption of proper long-term growth rates, and the selection of an appropriate discount rate to transform future cash flow estimates to their present values.

Because there are many factors affecting the outcomes of a DCF model, not to mention the impairment testing process, failure to appropriately comply with each of these factors results in erroneous outcomes in present values, CGU recoverable

amounts, impairment charges and reported earnings. Hence the true and fair value of consolidated financial statements is questionable.

Based on the results of investigating the variance between independently estimated and observed discount rates chosen by reporting firms in the first three years after Hong Kong's implementation of IFRS, reporting firms had a propensity to understate rather than overstate discount rates. Consequently, there is a likelihood that estimates of the CGU recoverable amount exceeds its book value and increases the level of „head room“ between the CGU carrying amount and its recoverable amount (Carlin & Finch, 2009b).

Owing to the flawed asset impairment regime prescribed in the accounting standard, reporting preparers occupied fertile ground in which many subjective assumptions and outcomes were possible. Determining which were the best outcomes was not easy for either financial statement users or auditors since there is no market for goodwill. Thus, financial statements were formed under subjective assumptions and judgements for the sake of management and preparers rather than for the sake of reporting users.

Based on the evidence accumulated in this research, there is a high possibility that discount rate selection is attributable to opportunism on the part of reporting firms. Where bias exists in discount rate selection, the quality of reported earnings, the validity of valuations relating to goodwill and the status of financial statements complying with the IFRS framework must be questioned. This raises concerns for policy makers, financial statement users and auditors.

Chapter 8: Audit Quality Assessment

8.1. Introduction

Audits serve a vital economic purpose and play an important role in satisfying the public interest to strengthen accountability and support trust and belief in financial reporting (ICAEW, 2005). The audit industry is becoming more and more important in the eyes of financial statement users as the concept of „true and fair“ of financial statements is often violated and there are increasing irregularities and frauds relating to accounting and financial reporting (Nguyen and Ngo, 2006).

Audit quality is regarded as one of the key issues in audit activities (Kit, 2005), and is defined as the probability that financial statements are fairly presented when an unqualified opinion is given (Simunic, 2003). It has long been accepted that large audit firms are associated with high audit quality in much of the literature (DeAngelo, 1981; Balvers *et al.*, 1988; Palmrose, 1988; Firth & Smith, 1992; Teoh & Wong, 1993; Copley *et al.*, 1994; Moize, 1997; Becker *et al.*, 1998; Krishnan & Schauer, 2000; Blokdijk *et al.*, 2003; Simunic, 2003). Typically, the quality of audit services conducted by large audit firms has been regarded as homogenous. However, the collapse of Arthur Andersen has undermined the belief that large audit firms provide higher audit quality than smaller firms.

A high audit quality depends much on the technical competence and independence of the auditor and their ability to detect material misstatements. According to Dang (2004), a high audit quality is associated with high quality information pertaining to financial statements because financial statements audited by high quality auditors are less likely to contain material irregularities. Normally, an audit includes an

examination of accounting documents, accounting methods and evidence relevant to the amounts and disclosures in the financial statements, and collects sufficient evidence to give reasonable assurance that financial statements contain no material irregularities.

Consequently, a large number of countries, including Hong Kong, switched to an IFRS-based financial reporting framework. The adoption of IFRS is considered to be the most revolutionary financial reporting development and is very difficult for financial statement preparers to apply in practice.

To coincide with the introduction of IFRS, Hong Kong designed its own accounting framework, the Hong Kong Financial Reporting Standards (HKFRS), which came into effect on 1 January 2005. Owing to the over-complexity and challenging technical requirements of HKFRS, not to mention some difficult pertinent issues including financial instruments, impairment and pensions, there was a high possibility that inherent misstatements in the financial statements of reporting firms in the early years after IFRS implementation would occur. Subsequently, misstatements in a client's accounting system are very difficult for an auditor to detect, and hence, audit quality may be impacted. Moreover, the combination of increased market, regulatory and technical pressure may result in implications for variations in audit quality.

The preparation of financial statements in compliance with the technical requirements of HKAS 36 or IAS 36 requires reporting firms to apply some financial principles drawn from discounting, forecasting and valuation models under potentially uncertain conditions. Different subjective assumptions relating to, for example, discount rates, long-term growth rates and forecast periods, produce different outcomes for present values that are discounted from future cash flows, and evaluating which is the best outcome is extremely difficult and potentially contentious.

The adoption of an IFRS-based financial reporting framework has not produced big changes in the format and nature of goodwill in the balance sheet and goodwill impairment in income statement, but has yielded dramatic changes in the face of notes to financial statements, i.e. reporting firms are required to disclose abundant financial information relating to goodwill impairment.

Because audit assurance (and therefore audit quality) is likely to be positively associated with compliance with accounting standards (Copley *et al.*, 1994), variations in disclosure of goodwill impairment in the note-form of financial statements are likely to be the result of variations in audit quality. Thus, the measure of audit quality variations employed in this research is the extent of compliance variations with the disclosure requirements pertaining to goodwill impairment in the multi-year dataset. So the level of technical compliance with requirements of goodwill impairment disclosures is regarded as a surrogate for audit quality in relation to the challenging and highly intricate provisions of the goodwill impairment testing regime.

This chapter reports on the results of variations in audit quality among the Big 4 auditors (Deloitte, Ernst & Young, KPMG and PricewaterhouseCoopers) based on the reporting firms' compliance with disclosure requirements relating to goodwill impairment in the first three years after Hong Kong's implementation of IFRS.

The chapter is set out as follows. Section 8.2 reviews the relevant literature on audit quality. Section 8.3 discusses key results, while section 8.4 provides some key conclusions and implications of the study practice.

8.2. Literature Review

Audit quality is an important element of corporate governance and can be defined as the probability that an auditor discovers and reports material misstatements in the accounting system of a company (DeAngelo, 1981; Watts & Zimmerman, 1986). In other words, audit quality is understood to be the probability that financial statements are free from material omissions or misstatements (Palmrose, 1988). Based on these definitions, audit quality consists of two elements; the first is generally related to technical competence and the second is related to the independence of an auditor (Caneghem, 2004).

However, the quality of an audit is not public information and cannot be directly observed by financial statement users. Owing to the nature of the audit process and the reporting of audit outcomes, evaluation of quality for particular audit engagements is somewhat murky (Teoh & Wong, 1993). Thus, assessing audit quality is one of the most controversial issues for researchers.

Auditor size is by far one of the most frequently used as a surrogate for audit quality in the previous literature. DeAngelo (1981), one of the earliest authors in the field of audit quality, analytically demonstrates that larger audit firms have more clients, more independence from their clients, better reputations and more to lose by failing to report discovered misstatements in the financial statements than smaller audit firms. So this motivates large audit firms to work harder than small audit firms, and *ceteris paribus*, more effort implies a higher quality audit. DeFond & Jiambalvo (1991) found that larger audit firms incur costs to develop a reputation for adding value to the audit and are better able to detect and report material misstatements in the financial statements.

A series of empirical evidence is ostensibly consistent with the hypothesis that large audit firms provide higher audit quality than small ones. Moize (1997) suggested that large firms' audit fees are higher than smaller firms' audit fees. The reason is that a higher audit fee is associated with a greater number of hours and hence a higher reputation implies a higher audit quality. In the study of Becker *et al.* (1998), the results show that discretionary accruals of clients with smaller auditors are higher than that of clients with large auditors. In other words, higher audit quality should be more likely to successfully detect and prevent earnings management.

Consistent with the hypothesis that large audit firms do assure higher quality audits, capital market research has shown that the stock market reacts more strongly when a client shifts to a large audit firm and reports higher earnings response coefficients compared to the client of a smaller audit firm (Teoh & Wong, 1993). Other studies on the market reaction to the initial public offerings (IPO) of stocks experience less underpricing from a large audit firm client than that from a small audit firm client (Balvers *et al.*, 1988; Firth & Smith, 1992), and pre-IPO audit reports from large auditors have more predictive accuracies with respect to future stock returns and subsequent de-listings (Weber & Willenborg, 2003).

Large audit firms have been found to have lower litigation occurrence rates than smaller audit firms (Palmrose, 1988). Krishnan & Schauer (2000) proved that the compliance levels with GAAP reporting requirements of large audit firm clients are higher than that of small audit firm clients and assumed that the extent of compliance with GAAP is likely to be related to the probability of detecting and revealing material misstatements. In addition, Street & Gray (2002) found that the levels of compliance with IFRS disclosure are positively associated with clients being audited by large auditors.

Much more of the literature also provides empirical evidence for asserting that auditor size is a surrogate for audit quality. However, the bankruptcies of firms such as Enron and WorldCom, as well as the demise of Arthur Andersen in 2002, once one of the biggest audit firms in the world, have both reduced the good image of the audit industry and raised serious concerns as to the quality of audits. Arthur Andersen is alleged to have violated the anti-fraud precepts and engaged in schemes that fraudulently misrepresented the results of its clients' activities (Chaney & Philipich, 2002; Kit, 2005), which clearly documents a lack of quality in properly detecting and reporting material misstatements in the accounting systems of its clients.

Chaney & Philipich (2002) investigated the impact of the collapse of Arthur Andersen on the firm's clients and found that Andersen's clients experienced a statistically negative market reaction with investors downgrading the audit quality conducted by Andersen. As a result, to some extent, the collapse of Andersen has undermined the long-held assertion that large audit firms provide higher audit quality. Thus a small number of recent studies have examined the possibility of differential audit quality among large audit firms, rather than assuming that there is a homogeneous audit quality among them.

Fuerman (2004) investigated the possibility of audit quality differentials among large audit firms by examining financial disclosures in relation to private securities class actions for the period from 1996 to 1998. This research found that Arthur Andersen produced lower quality audits than the other Big 6 auditors, but distinguishing audit quality among these audit firms was impossible.

In contrast, Eisenberg & Macey (2003) analysed the financial restatements performed by auditors and found no evidence of audit quality differentials among large audit firms, including Arthur Andersen. Other studies have also concluded that there is no

difference in audit quality among the big auditors (Tilis, 2006). Meanwhile, by using earnings forecast errors in prospectuses of IPO in Singapore, Lam & Chang (1994) even concluded that there is no difference in audit quality between large and small audit firms. Likewise, Petroni & Beasley (1996) found no systematic differences in claim loss accuracy or bias between clients of large and small audit firms.

Audit quality has been one of the most important issues in the field of audit research (Kit, 2005). While the audit quality literature has a propensity to support the proposition that audit quality conducted by large auditors exceeds that performed by small auditors, there is little evidence to show audit quality variation among large auditors. Because aspects of discovering and reporting material misstatements are unobservable (Krishnan & Schauer, 2000), researchers have chosen two methods for measuring audit quality in empirical work, namely, indirect and direct methods. The evaluation of audit quality by the indirect method tends to stem from a process of comparing observed values for some accepted proxies for quality among audit firms, while attempts to measure audit quality by the direct method is through the process of an audit.

The former approach seems to be more straightforward than the latter. As a result the majority of the literature measures audit quality using the indirect method (via proxy), including fee differentials (Copley, 1991; Moize, 1997); abnormal accruals (Yu, 2007); litigation occurrence and resolution (Palmrose, 1988); earnings forecast accuracy (Behn *et al.*, 2008); earnings response coefficients (Teoh & Wong, 1993); earnings management (Becker *et al.*, 1998); earnings forecast error (Davidson & Neu, 1993; Lam & Chang, 1994); and users' perceptions (Schroeder *et al.*, 1986; Boon, 2007).

In contrast, measuring audit quality using the direct method is more difficult and costly. Under this method, audit quality is measured by quality control review (Deis & Giroux, 1992); audit processes (Sutton & Lampe, 1991); peer review (Colbert & Murray, Jan, 1998); and audit performance (Blokdijs *et al.*, 2006). The direct method requires researchers to have an involvement in an audit team, or to have direct access to audit working papers and audit files, or is based on peer review processes performed pertaining to audit engagements (Carlin *et al.*, 2009a).

As discussed above, the matter of audit quality variations among the big audit firms is a very important issue and needs to be addressed. Further, in countries where the implementation of an IFRS-based reporting framework has coincided with other types of structural shifts impacting much on audit service provisions, significant emphasis has been directed toward audit firms (Carlin *et al.*, 2009a).

Measuring and reporting goodwill in an IFRS framework has produced substantial challenges for Hong Kong reporting firms. Almost all reporting firms have been impacted by the highly prescriptive impairment test under HKAS 36. With over-complex and challenging requirements, recognising, measuring and reporting goodwill and its impairment becomes very difficult for reporting firms to apply. Under HKAS 36, reporting firms are supposed to deal with considerably expanded disclosure requirements, in particular pertaining to the method employed to determine the CGU recoverable amount and key assumptions in each method.

The value of goodwill is impaired in the financial year if the recoverable amount of portfolios of assets (CGUs) is lower than the carrying amount related to those assets. Under HKAS 36, the recoverable amount is defined as the higher of an asset's or a CGU's fair value less costs to sell and its value in use. It transpires that reporting firms are required to benchmark (select) either the fair value or value in use method

for projecting the CGU recoverable amount, and each approach produces substantial implications for the types of disclosures provided by reporting firms.

HKAS 36 requires limited disclosures of the assumptions and processes adopted by a firm that has chosen fair value as the benchmark for impairment testing,⁵⁹ whereas more specific and highly detailed disclosures are required when adopting value in use as a benchmark for determining the recoverable amount of CGU. Detailed disclosure requirements for employing value in use for estimating recoverable amounts are stipulated in paragraph 134 (d) of HKAS 36.

The adoption of new accounting standards for goodwill has not produced significant changes to the format and nature of information recognised on the balance sheet and income statement, but it has considerably changed the disclosure of information related to goodwill in the notes to the consolidated financial statements. These changes are disclosed in the significant accounting policies and a specific note for justifying the value of goodwill in the balance sheet.

From an audit perspective, the IFRS framework results in overwhelming increases in information disclosures in the notes to the financial statements, and requires more involvement of auditors in achieving full compliance (Hoogendoorn, 2006). The volume of audit work also increases significantly due to the intricate provisions of IFRS.

The level of vigilance required on the part of auditors to data in the financial statements is also entirely different. Libby *et al.* (2006) proved that partners of the Big 4 auditors require more corrections of misstatements in recognised amounts in the balance sheet and income statement than in the notes to the accounts. This suggests

⁵⁹ See HKAS 36, Paragraph 134.

that high priority is given to minimising errors or irregularities in the balance sheet and profit and loss statement, and low priority is attached to significant accounting policies as well as a specific note of goodwill in the notes to the accounts.

Shifting to an IFRS-based regime for goodwill impairment has had a big impact on disclosures in the notes to financial statements. In particular, the highly detailed disclosure requirements in HKAS 36 represent a good opportunity to investigate the compliance issue, and gain insights into the audit quality differentials among auditors. Since the goodwill impairment standard is the one used to identify misstatements in the accounting system of an entity, the extent of compliance with this accounting standard is likely to be directly correlated with the probability of discovering and reporting irregularities in the accounting system, or audit quality.

In contemplating the technical requirements of the impairment testing process and disclosure under HKAS 36, some critical risk issues were scrutinised. The first of these issues relates to the manner in which CGUs are defined for the purposes of goodwill impairment testing.⁶⁰ The second involves the method employed and related assumptions in each method in the process of impairment testing.

Previous studies show the importance of technical processes in relation to the goodwill impairment testing process (Lonergan, 2007; Carlin *et al.*, 2009a). One key challenge that emerges in HKAS 36 is the manner in which goodwill is allocated to CGUs for the purposes of impairment testing. A particular risk relating to this process is known as the CGU aggregation problem (Carlin *et al.*, 2007c), where too few CGUs are defined or disclosed. This means that impairment expenses may be avoided

⁶⁰ HKAS 36 states that for impairment testing of goodwill, goodwill acquired in a business combination should be allocated to defined CGUs. The recoverable amount of an asset or CGU should then be determined by applying either fair value or value in use. Finally, impairment charges must be reported when the carrying amount of assets within a CGU exceeds the recoverable amount.

or at least deferred. So retained earnings may be overstated as a result of defining too few CGUs than normal.

The selection of discount rates, long-term growth rates and forecast periods in a DCF model, where a firm employs value in use in the process of goodwill impairment testing, is also of great interest. Evidently, the over-complex requirements stipulated in HKAS 36, the selection of methods made by reporting firms, the appropriate assumptions given, the rates of compliance with intricate technical requirements and the disclosure quality made pursuant to the goodwill impairment standard all provide much evidence for evaluating variations in audit quality among the Big 4 auditors in the multi-year dataset.

8.3. Assessment of Audit Quality

8.3.1. Method Employed

The focus of this chapter is on audit quality variations among the Big 4 auditors based on the reporting firms' compliance with disclosure requirements relating to goodwill impairment under HKAS 36. The threshold question in understanding the process of goodwill impairment testing is the selection of valuation methodology for estimating the recoverable amount of assets assigned to CGUs. Under HKAS 36, the recoverable amount of an asset or CGU assets is the greater of its fair value less costs to sell, determined according to market-based evidence, and its value in use, determined according to a DCF model.

Table 8.1 shows the frequency of method employed by auditors to estimate the recoverable amount of an asset or CGU assets in the period from 2005 to 2007. Based on goodwill impairment disclosures in the annual reports of each reporting firm, the

recoverable amount of an asset or CGU assets was estimated using fair value or value in use or a combination of the two.

Consistent with the extant literature, the value in use approach dominated in the initial IFRS adoption year and continued to dominate thereafter in the clients of the Big 4 auditors, i.e. 82.7% of sample firms adopted value in use in 2005, 85.5% in 2006 and 88.1% in 2007. An explanation for this dominance is that disclosure requirements for fair value are limited in the assumptions given and processes employed and it is entirely difficult and highly subjective to evaluate the results of fair value for goodwill (Carlin *et al.*, 2007a; Jarva, 2008). On the contrary, fair value and the mixed method were chosen to determine the recoverable amount of CGU assets with low percentages of the whole year sample, from around 2% to 4.5% in multi-year dataset.

A small number of audit firm clients failed to disclose the method used for measuring the CGU recoverable amount, with a falling tendency from 12.0% in 2005 to 7.7% in 2006 and 5.7% in 2007. These audit firm clients were assessed not to have aligned with the basic disclosure requirement of HKAS 36. Consequently, it was impossible to perform the goodwill impairment testing process.

The tendency to not report the method employed for estimating the recoverable amount of CGU assets was different for the audit firm clients, i.e. falling in 2006 and increasing in 2007 for KPMG and PWC clients, but increasing in 2006 and falling in 2007 for Deloitte and E&Y clients. On the whole, PWC clients had higher levels of non-compliance with the basic technical requirements in comparison with the other Big 4 clients, especially Deloitte.

Table 8.1: Method Employed to Determine Recoverable Amount of CGUs

Method Used	Whole sample			Deloitte			E&Y			KPMG			PWC		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Fair value	3	5	7	-	1	2	1	2	1	2	2	3	-	-	1
Value-in-use	124	189	200	42	58	58	27	42	52	12	28	26	43	61	64
Mixed method	5	10	7	-	3	2	4	2	1	-	-	-	1	5	4
No effective disclosure	18	17	13	1	5	1	1	5	4	4	1	1	12	6	7
Total (n)	150	221	227	43	67	63	33	51	58	18	31	30	56	72	76
Proportions of firms where no effective disclosure (%)	12.0%	7.7%	5.7%	2.3%	7.5%	1.6%	3.0%	9.8%	6.9%	22.2%	3.2%	3.3%	21.4%	8.3%	9.2%

8.3.2. Cash Generating Unit Allocation

Under the technical requirements of CGU allocation, goodwill balance in the consolidated financial statements should be allocated to defined CGUs. Accordingly, the analytical technique was used to compare the reported value of goodwill with the sum of the amounts of goodwill allocated to specified CGUs of the reporting sample firms of the Big 4 auditors.

The majority of audit firm clients fully aligned with the basic disclosure requirements of HKAS 36 with numbers rising, from 64.7% in 2005 to 71.5% in 2006 and 75.8% in 2007, in which case it was possible to have matched data between the value of goodwill on the balance sheet and the sum of goodwill allocated to CGUs. For only a small number of Deloitte, E&Y and KPMG clients⁶¹ goodwill value allocated partially to defined CGUs and discrepancies between goodwill value and the sum of goodwill allocated to CGUs were considered to be immaterial.

Meanwhile, a high proportion of audit firm clients provided no information pertaining to the link between goodwill value and the value of goodwill allocated to defined CGUs. The numbers fell from 34.7% in 2005, to 27.6% in 2006 and 22.9% in 2007. These audit firm clients were judged not to have conformed to the technical requirements of HKAS 36.

⁶¹ In 2005, Guangdong Investment, a client of E&Y, had a goodwill balance of \$139.3 million, but only allocated to one CGU, water supply, with the amount of \$138.9 million. The percentage of unallocated goodwill to CGU was 0.28%. In 2006, Guangdong Investment, had a goodwill balance of \$216.13 million, but only allocated to one CGU, water supply, with the amount of \$215.76 million. The percentage of unallocated goodwill to CGU was 0.16%. Cathay Pacific Airways, a KPMG client, had a goodwill balance of \$7,390 million, but only allocated to one CGU, airline operation, with the amount of \$7,351 million. The percentage of unallocated goodwill to CGU was 0.52%. In 2007, Towngas China, a Deloitte client, had a goodwill balance of \$2,180.29 million, but allocated with the amounts of \$2,111 million. The percentage of unallocated goodwill was 3.17%; Guangdong Investment, had a goodwill balance of \$256.12 million, but only allocated to one CGU, water supply, with the amount of \$255.76 million. The percentage of unallocated goodwill to CGU was 0.14%; Cathay Pacific Airways had a goodwill balance of \$7,666 million, but only allocated to CGU, airline operation, with the amount of \$7,627 million. The percentage of unallocated goodwill to CGU was 0.5%.

The non-compliance levels relating to the disclosure of the relationship between goodwill balances and goodwill allocated to defined CGUs were as follows. For clients of KPMG and PWC, there was a steady decrease over the time period; for clients of Deloitte, the level increased slightly in 2006 and decreased again in 2007; and for clients of E&Y, the level decreased in 2006 and increased in 2007. On the whole, PWC and E&Y clients had the highest levels of non-compliance with paragraph 80 of HKAS 36, followed by KPMG clients and those of Deloitte.

Table 8.2: CGU Allocation Compliance by Auditor

Number of firms	Whole sample			Deloitte			E&Y			KPMG			PWC		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Fully compliant	97	158	172	37	57	56	18	34	38	10	22	22	32	45	56
Ostensibly compliant	1	2	3	-	-	1	1	1	1	-	1	1	-	-	-
Non-compliant	52	61	52	6	10	6	14	16	19	8	8	7	24	27	20
Total (n)	150	221	227	43	67	63	33	51	58	18	31	30	56	72	76
Proportions of firms where non-compliant (%)	34.7%	27.6%	22.9%	14.0%	14.9%	9.5%	42.4%	31.4%	32.8%	44.4%	25.8%	23.3%	42.9%	37.5%	26.3%

8.3.3. Business Segments and Cash Generating Units

While the first two analytical procedures outlined above did not conclusively suggest that cross-sectional disclosure practice variations were explicable by reference to the identity of the audit firms, the following analytical procedures reveal clearer variations among the Big 4 auditors.

The allocation of goodwill balance in the financial statements to defined CGUs is a crucial process since it affects the recognition of impairment losses. Defining too few CGUs relative to the true manner of operating units within an entity generates independent streams of cash flow which involve at least some goodwill.

According to paragraph 80 of HKAS 36, a CGU or group of CGUs to which goodwill is allocated for the purpose of impairment testing represents the lowest level within an entity at which goodwill is monitored for internal management purposes. In addition, the CGUs defined are not larger than operating segments as reported by an entity. Based on these requirements, it seems contradictory that goodwill is internally controlled at a higher level of aggregation than that implicit in the business segment defined by the entity (Carlin *et al*, 2007b). However, this presents a good opportunity to examine the accuracy of CGU aggregation.

Table 8.3 illustrates the relationship between the number of defined CGUs and the number of defined business segments by auditor identity in the first three years after implementation of HKAS 36. In those instances where data relating to the existence and identity of CGUs is reported, the tendency is for fewer rather than more CGUs to be defined. So this suggests a higher risk factor of CGU aggregation to audit firm clients in the multi-year dataset.

On the whole, proportions for firms where the number of CGUs were fewer than the number of segments or there was no effective disclosure were very high, accounting for two-thirds of the sample in each year, although there was some fluctuation, i.e. 68% in 2005, 69.7% in 2006 and 67% in 2007. These clients of the Big 4 auditors were judged not to have complied with the technical requirements of HKAS 36.

With regard to audit firm clients, non-compliance rates fluctuated over the time frame for clients of Deloitte and PWC, decreased for clients of E&Y, and increased for clients of KPMG. On the whole, E&Y clients had the highest levels of non-compliance with the basic disclosure requirements of HKAS 36, followed by KPMG and then PWC clients. While Deloitte clients had the lowest rates of non-compliance, these were still high, more than 58% of the whole sample.

Table 8.3: Business Segments and CGU Aggregation by Auditor

Number of firms	Whole sample			Deloitte			E&Y			KPMG			PWC		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
CGU > Segments	18	28	31	6	10	8	2	4	7	2	6	4	8	8	12
CGU = Segments	30	39	44	12	11	18	2	6	7	5	3	3	11	19	16
CGU < Segments	58	98	109	21	36	32	17	27	28	3	14	16	17	21	33
No Effective Disclosure	44	56	43	4	10	5	12	14	16	8	8	7	20	24	15
Total (n)	150	221	227	43	67	63	33	51	58	18	31	30	56	72	76
Proportion of firms where CGUs < segments or no effective disclosure (%)	68.0%	69.7%	67.0%	58.1%	68.7%	58.7%	87.9%	80.4%	75.9%	61.1%	71.0%	76.7%	66.1%	62.5%	63.2%

8.3.4. Cash Generating Unit and Segment Ratio

Another technique used in the analysis of defined CGUs versus business segments for investigating the risk of inappropriate CGU aggregation was to calculate the ratio of CGUs to segments, as set out in Table 8.4.

Consistent with the results shown in Table 8.3, on average fewer CGUs than business segments were defined in the audit firms' clients in all three years after IFRS implementation. This is expressed in the low percentage ratio of CGUs to segments higher than 1.01 in each whole year sample, i.e. 12% in 2005, 12.67% in 2006 and 13.66% in 2007.

As Table 8.4 illustrates, where more CGUs than business segments were defined, the difference is typically small, with some instances in which more than 1.5 CGUs were defined. Considering the expectation in HKAS 36 that CGUs should be no larger than defined business segments, it is anomalous to see so many cases where fewer CGUs than segments exist.

The data shows that the higher the ratio of CGUs to segments higher than 1.01, the lower the risk of inappropriate CGU aggregation. Consequently, E&Y clients potentially had more problems associated with CGU aggregation than the other Big 4 clients. This suggests that E&Y clients masked more impairment and therefore prevented the detection and overestimation of accounting profits.

Table 8.4: Ratio of CGU to Business Segment

Number of firms	Deloitte			E&Y			KPMG			PWC		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
No Effective Disclosure	4	10	5	12	14	16	8	8	7	20	24	15
CGU : Segment is between 0.00 - 0.50	18	26	25	11	21	24	3	12	13	13	15	21
CGU : Segment is between 0.51-0.99	3	10	7	6	6	4	0	2	3	4	6	12
CGU : Segment = 1	12	11	18	2	6	7	5	3	3	11	19	16
CGU : Segment is between 1.01-1.50	1	2	2	-	-	2	1	4	1	1	1	3
CGU : Segment>1.50	5	8	6	2	4	5	1	2	3	7	7	9
Total (n)	43	67	63	33	51	58	18	31	30	56	72	76
Mean CGU : Segment ratio	0.82	0.91	0.88	0.87	0.79	0.93	1.11	0.97	0.87	1.08	0.99	0.95
Median CGU : Segment ratio	0.71	0.60	0.67	0.50	0.38	0.50	1.00	0.50	0.50	1.00	1.00	0.75
Minimum CGU: Segment ratio	0.20	0.14	0.14	0.13	0.11	0.11	0.33	0.25	0.20	0.14	0.17	0.17
Maximum CGU : Segment ratio	2.00	5.00	5.00	5.00	5.00	8.00	3.50	4.50	4.50	5.00	4.00	4.00
% CGU : Segment > 1.01	13.95%	14.93%	12.70%	6.06%	7.84%	12.07%	11.11%	19.35%	13.33%	14.29%	11.11%	15.79%

8.3.5. Discount Rate

The quality of discount rate disclosure for estimating the recoverable amount of CGU assets in the multi-year dataset was used for identifying audit quality variations among the Big 4 firms, as shown in Table 8.5.

Disclosure of discount rates among the audit firm clients was inadequate when it referred to the technical disclosure requirements of HKAS 36. The practice of discount rate disclosure leaves much to be desired against the accounting standard setters' expectation. The dominant approach employed in relation to discount rate, more than 60% of the whole sample, was single discount rate for all defined CGUs, even though each CGU has different inherent risk characteristics.

The rate of audit firm clients choosing multiple explicit discount rates was 11.6%, 11.1% and 14% in 2005, 2006 and 2007 respectively. The rate of Big 4 audit firm clients selecting a range of discount rates was lowest in the whole sample, i.e. 5.4% in 2005, 6% in 2006 and 7.2% in 2007.

Strikingly, a high proportion of audit firm clients provided no effective disclosure pertaining to discount rate, the numbers falling slightly, from 18.6% in 2005 to 17.6% in 2006 and 13.5% in 2007. There were distinctions among the Big 4 auditors with regard to the quality of disclosure relating to discount rate. Clients of PWC appeared to make less effective disclosures pertaining to discount rate assumptions than those produced by the other Big 4 firms, particularly Deloitte.

The data also show that the average discount rate applied by E&Y clients in the context of modelling CGU assets was lower than the discount rate applied by clients of the other Big 4 auditors. A lower discount rate employed in a DCF valuation in the

process of impairment testing would increase CGU recoverable amount estimates and thus lower the chance of recording impairment loss.

As a whole, some important outcomes have emerged relating to discount rate under the process of impairment testing. First, the level of non-compliance with regard to discount rate disclosure among Big 4 auditor clients was rather high, although it did fall somewhat over the period of the study. This reduces the credibility of audit quality in the eyes of financial statement users. Second, most audit firm clients preferred to employ blanket single discount rates in estimating the recoverable amount of CGU assets rather than multiple explicit discount rates. This calls into question the appropriateness of the risk-adjusted discount rate for each defined CGU and the unreliability of estimated results under the DCF model. Third, there is some evidence that audit firm clients used aggressively low discount rates. For example, discount rates chosen by E&Y clients in the context of modelling CGU assets was abnormally low at 1.4%.⁶² This results in an overestimated recoverable amount of CGU assets and potentially defers or avoids goodwill impairment losses.

⁶² This judgement was given based on long-running sovereign risk-free rates in jurisdictions such as the United States at levels in excess of 5%, and Australia at levels of 6%. It therefore seems unusual that discount rates appropriate to risky entities in a less developed economic setting should be low.

**Table 8.5: Analysis of Discount Rates Used to Test Impairment
(Value in Use and Mixed Method Only)**

Number of firms	Whole sample			Deloitte			E&Y			KPMG			PWC		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Multiple explicit discount rates	15	22	29	1	7	11	6	5	8	3	3	2	5	7	8
Single explicit discount rate	83	130	135	39	47	44	15	31	36	6	18	16	23	34	39
Range of discount rates	7	12	15	2	5	2	2	3	4	1	2	3	2	2	6
No effective disclosure	24	35	28	-	2	3	8	5	5	2	5	5	14	23	15
Total (n)	129	199	207	42	61	60	31	44	53	12	28	26	44	66	68
Proportion of firms where no disclosure	18.6%	17.6%	13.5%	0.0%	3.3%	5.0%	25.8%	11.4%	9.4%	16.7%	17.9%	19.2%	31.8%	34.8%	22.1%
Minimum discount rate (%)	1.40	3.80	2.60	4.13	3.80	5.00	1.40	4.00	3.10	4.50	4.20	5.00	5.00	4.50	2.60
Maximum discount rate (%)	18.30	25.80	25.90	15.00	23.50	22.36	18.30	25.00	23.70	17.80	25.80	25.90	17.00	17.93	20.00
Median discount rate (%)	9.49	9.23	10.00	8.65	9.00	10.00	6.50	9.00	10.00	9.93	9.80	10.88	10.00	10.00	10.44
Mean discount rate (%)	9.02	9.67	10.68	8.96	9.55	11.26	7.98	9.56	9.68	9.18	9.96	10.79	9.85	9.77	10.93

8.3.6. Growth Rate

Growth rate is used to estimate the terminal value of an asset or CGU assets at the end of the forecast period. It reveals the degree of optimism or pessimism existing in a business.

The same problems that were encountered with discount rate disclosures were also manifest with growth rate assumptions. There was an alarming rate of non-compliance with the technical disclosure requirements in relation to long-term growth rates embedded in a DCF model. As data in Table 8.6 reveal, on average, in excess of 65% of audit firm clients failed to make any disclosures on long-term growth rates, even though it is compulsory for reporting firms to disclose assumptions of long-term growth rate in a DCF model.

As can be seen from Table 8.6, on average, the lowest rate of non-compliance with disclosure requirements relating to growth rate assumptions belongs to KPMG clients, followed by clients of E&Y, PWC and Deloitte.

The average estimated long-term growth rates employed by PWC clients were higher than those chosen by the other Big 4 auditor clients, particularly Deloitte. By using higher growth rates in the DCF model, other things being equal, estimates of the CGU recoverable amount would increase, and the chance of recognising goodwill impairment losses, and thus increasing the possibility of reporting accounting profit in a given year would decrease.

In addition, average estimated forecast periods selected by the clients of the Big 4 auditors were greater than six years. Under the technical requirements of HKAS36,

projections based on budgets or forecasts should cover a maximum period of five years, unless a longer period can be justified.

Table 8.6: Analysis of Growth Rates Used to Test Impairment⁶³
(Value in Use and Mixed Method Only)

Number of firms	Whole sample			Deloitte			E&Y			KPMG			PWC		
	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007	2005	2006	2007
Multiple explicit growth rates	9	13	14	1	1	5	3	3	4	2	3	2	3	6	3
Single explicit growth rate	27	37	48	5	10	11	8	10	16	6	8	7	8	9	14
Range of growth rates	1	7	7	-	1	2	-	1	-	-	1	-	1	4	5
No effective disclosure	92	142	138	36	49	42	20	30	33	4	16	17	32	47	46
Total (n)	129	199	207	42	61	60	31	44	53	12	28	26	44	66	68
Proportion of firms where no effective disclosure	71.3%	71.4%	66.7%	85.7%	80.3%	70.0%	64.5%	68.2%	62.3%	33.3%	57.1%	65.4%	72.7%	71.2%	67.6%
Minimum growth rate (%)	0.00	-1.00	0.00	0.00	-1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00
Maximum growth rate (%)	13.00	20.00	26.76	6.90	9.00	26.76	10.00	14.00	12.00	6.54	6.54	22.40	13.00	20.00	15.60
Median growth rate (%)	3.00	2.50	3.50	0.00	1.50	2.75	0.00	1.25	3.90	4.65	3.03	5.00	3.70	2.00	3.40
Mean growth rate (%)	3.11	3.15	4.01	1.88	2.54	3.40	1.85	3.11	3.29	3.52	3.32	6.88	4.61	3.47	3.99
Mean forecast period (years)	6.21	6.30	6.19	7.23	7.01	6.89	5.84	5.78	5.74	5.78	6.22	6.82	6.58	5.91	5.61

⁶³ Table 8.6 does not consist of one outlier relating growth rate and six outliers relating forecast period according to Histogram and Boxplot. With regard to growth rate, Hi Sun Technology (China), a client of PWC, used a range of growth rates between 15% and 45% for the year 2007. Relating to forecast period, in 2005, Tianjin Development Holdings, a client of PWC and Chong Hing Bank, a client of Deloitte employed a single forecast period of 40 years. In 2006 and 2007, Public Financial Holdings, a client of E&Y, employed a single forecast period of 50 years, and Tianjin Development Holdings, a client of PWC, applied a single forecast period of 40 years.

8.4. Conclusion

This chapter found evidence of variations in audit quality among the Big 4 auditors (Deloitte, E&Y, KPMG and PWC) in the dataset from the first three years after Hong Kong's adoption of IFRS. The measure of audit quality variations employed in this research is the extent of compliance with the disclosure requirements pertaining to goodwill impairment testing of Hong Kong-listed reporting firms under HKAS 36.

In contrast to other studies that have only evaluated audit quality variations among the Big 4 auditors after the first year of implementation of IFRS using a small sample size, this research investigated a large sample size over three years following implementation of IFRS. Thus the results can be considered to be more persuasive and highly reliable.

Based on accumulated evidence obtained from the sample of listed firms in the first three years after Hong Kong's implementation of IFRS, and by testing the basic disclosure requirements relating to goodwill impairment such as method employed, CGU aggregation and specific disclosure requirements including assumptions of discount rates and long-term growth rates, there was systematic non-compliance and poor disclosure quality among the clients of all Big 4 auditors.

Variations in non-compliance rates with the disclosure requirements pertaining to goodwill impairment, on the whole, were small and slightly decreased from 2005 to 2007. These findings were consistent with the findings that were analysed in Chapters 5 and 6. Of the Big 4 auditors, Deloitte clients were judged, on the whole, to have the best practice relating to disclosures in the process of goodwill impairment, while PWC clients were judged to have the poorest practice in relation to this issue.

Evidently, the extent of compliance with accounting standards, including the accounting of goodwill impairment, is likely to be positively associated with the probability of detecting and reporting material misstatements in the financial statements. Variations in disclosures of goodwill impairment of audit firm clients are likely to be the result of audit quality variations in the multi-year dataset. Based on the decreasing tendency of non-compliance rates with disclosure quality pertaining to goodwill impairment, audit quality in subsequent years is judged to be higher than that in the previous years.

Evidence collected in this research contributes to the literature by offering the proposition that audit quality among the Big 4 auditors is not best seen as homogeneous, as has so often been the case in previous research, but is subject to variation.

Chapter 9: Conclusion

9.1. Introduction

The aim of this research has been to close the gap and enrich the literature on goodwill impairment in the developed region of Hong Kong during the transition process from an indigenous accounting framework to IFRS.

This study has explored the topic of goodwill impairment, one of the most difficult issues of financial reporting in practice, after Hong Kong's move to IFRS. Based on current practice with a variety of precepts of HKAS 36 and the quality of disclosure pertaining to goodwill impairment, the issues of compliance, discount rate and audit quality have been carefully investigated.

To answer research questions 1 and 2, compliance levels were evaluated by inspecting the detailed disclosures in relation to goodwill impairment testing made by listed firms. To answer question 3, discount rate variance was undertaken by comparing discount rates reported by listed firms with independently generated estimates of firm-specific risk-adjusted discount rates. To answer question 4, audit quality was measured by the degree of technical compliance with the disclosure requirements of goodwill impairment.

The responses to the research questions are distributed throughout the empirical chapters, which form the main body of this research. This chapter has two key objectives. The first is to summarise the main findings that were presented in the empirical chapters. This is set out in section 9.2. The second is to raise some implications through the real practice of goodwill impairment on the part of Hong

Kong-listed firms. This is presented in section 9.3. Final conclusions are briefly made in section 9.4.

9.2. Major Findings

9.2.1. A Feature of Lax Compliance in Early Years after Adoption of Accounting Standards

As demonstrated in the previous chapters, prior studies have expressed concerns about the quality of financial information emanating from the impairment testing framework for goodwill measurement and reporting, but concern over the issue of compliance with accounting standards seems to be neglected. Recently, some studies have begun to look into the issue of compliance pertaining to goodwill impairment in some jurisdictions. But the sample sizes have been small and the dataset limited, having drawn only upon first-year adoption of the goodwill impairment standard.

Compliance levels and disclosure quality were evaluated according to responses to research questions 1 and 2, and analysed and presented in Chapters 5 and 6. However, the process of evaluating the levels of compliance and quality of disclosure was different in each chapter. In Chapter 5, compliance levels were assessed according to the matched sample of first-time adopters (the same firms in different years) to evaluate if there was any improvement in performance over the period. In Chapter 6, compliance levels were evaluated on an unmatched sample (different firms in different years), which described the practice of all listed firms in the HKEx over the three-year period.

Irrespective of whether the samples were matched or unmatched, the rate of non-conformity and poor disclosure quality pertaining to goodwill impairment gradually

reduced in the time series after IFRS implementation. But, overall, there was an alarming rate of non-compliance and poor disclosure quality in relation to goodwill impairment on the part of first-time adopters in particular and listed firms in general.

The findings of this research in the context of Hong Kong, using a bigger sample size and longer investigation period, are reminiscent of other findings revealed in analogous studies in other jurisdictions with small sample sizes and only one year of investigation. Thus there is evidence to assume that lax compliance is a feature of early adoption of accounting standards, including HKAS 36 – *Impairment of Assets*.

Apparently, low compliance levels and poor disclosure quality are not products of jurisdiction-specific idiosyncrasies, but are more likely systematic irregularities which go beyond borders and exist wherever IFRS, including the goodwill impairment standard, has been employed or is in the process of being employed.

9.2.2. Tendency of Understated Observed Discount Rates

The selection of discount rates represents a central point in measuring the magnitude of impairment losses. Bearing in mind the importance of this issue, discount rate was used as an effective instrument in setting desired expenses and profits by opportunistic behaviour on the part of reporting firms in distorting present values, asset recoverable amounts, impairment losses and reported earnings.

To evaluate the variance of discount rates in the three consecutive years after Hong Kong's implementation of IFRS, a comparison was conducted between observed discount rates selected by listed firms and independently estimated discount rates calculated by the CAPM. Based on the results obtained in Chapter 7, observed discount rates were understated in comparison with independently estimated discount

rates. This result occurred not only in the first year after the adoption of HKAS 36, but also in some consecutive years.

The findings in this study are similar to those from other research conducted in jurisdictions including Australia and New Zealand. Despite the fact that these prior studies surveyed a small sample size over only one year of goodwill impairment testing, the results across all research suggest that listed firms have a propensity to understate observed discount rates. Consequently, there is a high possibility that estimates of the CGU recoverable amount exceed its carrying amount and increase the level of „head room“ between the CGU recoverable amount and its book value. Hence impairment losses may be avoided or at least inappropriately deferred and reported earnings may be inflated in the multi-year dataset.

The findings in this research are also consistent with those of Nguyen & Ngo (2006) who determined that assets and revenue are often overstated, and liabilities and expenses are often understated. Based on the findings in this study, there is a high possibility that bias exists in the selection of discount rates. Consequently, the quality of reported earnings, the validity of valuations relating to goodwill, and the status of financial statements aligning with the IFRS-based goodwill reporting framework must be questioned.

The selection of observed discount rates lower than appropriate discount rates on the part of Hong Kong listed firms also indicates that the levels of compliance with the technical requirements of goodwill impairment are very low. Given the high reliance on DCF modelling as a basis for developing asset recoverable amount estimates, the understated observed discount rates result in reducing the magnitude of present values and the CGU recoverable amount, and mitigating the chance to recognise impairment

losses, thereby increasing the reported earnings. So „true and fair“ in financial statements is difficult to achieve.

9.2.3. Heterogeneity of Audit Quality among Big 4 Auditors

Audit quality of the Big 4 auditors in this study was measured by the degree of technical compliance with disclosure requirements bearing on goodwill impairment in the context of Hong Kong for the first three years after Hong Kong's implementation of IFRS. The method of audit quality measure applied was the indirect method and the level of compliance with the accounting standard is regarded as a surrogate for audit quality.

Early research into the issue of audit quality suggested a positive relationship between audit firm size and audit quality. Based on this assumption, a plethora of studies have tested for evidence of audit quality differences based on the size of the firm undertaking the audit (Carlin *et al.*, 2007a). Much other research has concluded that bigger audit firms do provide higher audit quality, and the quality of audit services provided by large audit firms has been assumed to be homogeneous.

Based on the findings of this research as analysed in Chapter 8, the levels of non-compliance with technical disclosure requirements in relation to goodwill impairment decreased in the period from 2005 to 2007. This suggests that the audit quality of the Big 4 auditors in subsequent years was better than that in previous years. However, non-compliance rates and poor disclosure quality were relatively high overall. In addition, Big 4 audit firm clients received unqualified opinions. This raises the issue of the questionable audit quality of the Big 4 auditors.

Of the Big 4 auditors, PWC clients were judged to have the poorest practice disclosure pertaining to goodwill impairment testing in comparison with clients of the remaining Big 4 auditors, especially Deloitte. This suggests that audit quality among the Big 4 auditors is not homogeneous as has so often been claimed in previous studies, but is rather heterogeneous or, at the very least, subject to variation.

9.3. Implications

Goodwill is an important component of a firm's value, representing about 20% of the total assets of business combinations that occurred between 1990 and 1994 (Henning *et al.*, 2004). The percentage of goodwill to purchase price for acquisitions that occurred from 1997 to 2002 is about 68% (Long, 2005). In the process of international business integration, there have been increased M&A transactions, so goodwill is becoming a more material asset in the balance sheets of many reporting firms. Thus, the accuracy of goodwill impairment testing conducted by reporting firms becomes more and more important and determines the true and fair view of financial information relating to goodwill and its impairment.

It is acknowledged that HKAS 36 and analogue IAS 36 are ambiguous, subjective and complex. Hence implementation of this standard is challenging and one of the most difficult issues in practice (Hoogendoorn, 2006). The difficulty in applying this standard is in determining the recoverable amount of CGU assets to which the goodwill is allocated. The recoverable amount is normally based on value in use, which is calculated in the DCF model. This is very subjective and depends on uncertain events in the future. So many results may be acceptable. It is difficult to determine which is the best outcome and also difficult to challenge the calculations of management as being too pessimistic or optimistic.

Meanwhile, auditors and accountants are required to guarantee that financial statements are prepared in accordance with the accounting standards and that the financial information reflects a true and fair view. As with the findings from research conducted in Australia, Malaysia, Singapore and other jurisdictions, compliance levels with technical requirements pertaining to goodwill impairment were low. This suggests that both auditors and accountants may be struggling to understand and apply this intricate issue in practice.

The results of this study also show that the policy implications play very importance in implementing and complying with accounting policies on the part of reporting entities. By this reason, policy makers, regulators and standard setters should consider the issues that have already been encountered in practice when revising for future development. It is said that more guidance and more robust monitoring is needed to enhance the efficacy of accounting standards in practice.

Owing to the intricate and ambiguous provisions of HKAS 36, financial statement users such as creditors, investors and banks should be aware of the complicated issues in practice when assessing actual performance as well as the accuracy of the outcomes of the impairment testing process.

9.4. Final Conclusion

This study of compliance, discount rate and audit quality with regard to goodwill impairment is the first research for listed firms in the context of Hong Kong with a multi-year dataset for the first three years after Hong Kong's transition to IFRS. Some of the study's findings have been consistent with the results provided by researchers who have previously investigated similar research questions.

Though the analysis reported in this thesis has examined the situation in a developed region, i.e. Hong Kong, in considerable detail, it must nonetheless be recognised that the analysis focused mainly on the assumptions when the method of value in use was employed for estimating the recoverable amount of CGU assets and not the market-based assumptions of the fair value approach. Consequently, these limitations may affect the robustness of the research's findings. However, the opportunity exists for further research to test the key assumptions of both fair value and value in use in the goodwill impairment testing process; and there is also room for further comparative international works.

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