

Does an IFRS impairment approach improve the association between goodwill accounting and firms' investment opportunities?

Abstract

International Financial Reporting Standards (IFRS) adoption resulted in a significant transformation of the accounting treatment for goodwill in many countries. Instead of amortizing goodwill, firms now test for its impairment and write off impairment losses against income. Regulatory bodies such as the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) claim that goodwill impairment better reflects the underlying economic value of goodwill than amortization. We investigate this claim in an Australian context by comparing the association between goodwill accounting charges against income and firms' economic investment opportunities in amortization and impairment regimes. We find that firms' goodwill impairment losses are negatively associated with underlying investment opportunities, whereas there is no association between goodwill amortization charges and firms' IOS. This indicates that a goodwill impairment regime better reflects the underlying economic attributes of goodwill.

1. Introduction

Accounting for goodwill is a contentious issue that has generated debate for several decades. Much of the debate focuses upon whether goodwill should be recognized as an asset and if so, whether capitalized amounts should be subsequently amortized systematically or written down as goodwill is impaired (e.g., Bugeja and Gallery, 2006). Australian standard setters reacted to this debate during the 1990s by promulgating *AASB 1013 Accounting for Goodwill*, which required straight-line amortization of goodwill over its useful life, not exceeding 20 years. The debate then regained prominence with Australia's adoption of equivalents to International Financial Reporting Standards (IFRS). Adopted for the first full reporting period ending on or after 1 January 2005, IFRS require firms to test for goodwill impairment at least annually and write-down the goodwill against income if it is impaired.

The switch from Australia-specific accounting standards (AGAAP) to an impairment regime was controversial,¹ and the differing views expressed by respondents to the IASB Exposure Draft (ED) 3 *Business Combinations* highlight the lack of consensus in academic and business communities on the appropriate goodwill accounting treatment. The IASB, consistent with the Financial Accounting Standards Board (FASB), adopted a goodwill impairment regime on the basis of arguments that it better reflects the underlying economic value of goodwill compared to an amortization regime.

Studies that examine the value relevance of firms' reported goodwill in both Australia and the US suggest that goodwill capitalization is important to investors (Chauvin and Hirshey, 1994; Choi et al., 2000; Churyk, 2005; Godfrey and Koh, 2001; Henning et al., 2000). The findings from Godfrey and Koh (2001) also suggest that investors attach greater value to

¹ See Hepburn (2002); Massoud and Raiborn (2003) and Wayman (2002). Articles in the financial press with headlines such as 'Accounting for goodwill: are we better off', 'Impairment charges: the good, the bad and the ugly' and 'A necessary evil (goodwill impairment)?' also demonstrate the controversial nature of goodwill accounting.

reported goodwill than to many other balance sheet items, including identifiable intangible assets. This evidence indicates that the accounting treatment for goodwill has important economic consequences for reporting firms and capital market participants attach value to recognized goodwill when making and evaluating decisions. Given the economic implications of goodwill reporting and the fundamental differences that exist between AGAAP and IFRS goodwill accounting, research examining the impact of alternative regulatory regimes can guide assessments of potential future accounting standards and revisions of existing standards relating to goodwill accounting or similar accounting issues.

The fundamental change in goodwill regulation motivates us to empirically investigate the FASB (2001a) and IASB (2005) claims that goodwill impairment better reflects the underlying economic value of goodwill than amortization. Prior research using a New Zealand amortization regime test period identifies that firms' choices of economic life over which to amortize goodwill reflects the firms' underlying investment opportunity sets (IOS) (Bradbury et al. (2007). Commensurate with this finding and using the US goodwill impairment regime setting, Godfrey and Koh (2009) report a negative association between goodwill impairment losses and firms' IOS. We contribute to this literature by comparing the association between Australian firms' goodwill charges against income and their IOS in a regime when national standards required systematic amortization of goodwill (AGAAP) and the subsequent IFRS impairment regime. Specifically, we examine firms' accounting before and after the introduction of IFRS to investigate whether firms' goodwill charges against income better reflect the diminution of investment opportunities under a goodwill impairment regime or an amortization regime.

Evidence indicates that managers' voluntary intangible asset recognition choices are based on their insights into the firm's underlying economic circumstances (Wyatt 2005).

However, managers can use these insights and their reporting discretion to distort accounts if managers seek to do so. The impairment testing regime requires professional judgment and discretion to be exercised by preparers, thereby introducing opportunities for managerial interpretation, judgment and bias (Massoud and Raiborn, 2003; Watts, 2003a, b; Wines et al., 2007). By examining the association between firms' IOS and goodwill impairment losses, our study assists in determining whether managerial discretion and judgment are applied in a manner that reflects the underlying economic attributes of the firm.

Consistent with Godfrey and Koh (2009), our results indicate that firms' goodwill impairment losses reflect firms' underlying investment opportunities. In particular, we find a negative association between firms' IOS and goodwill impairment losses. This supports the argument that the IFRS impairment regime aligns financial reporting with firms' underlying economic circumstances. Moreover, our results indicate that the impairment regime enables firms with greater (less) investment opportunities to maintain (reduce) goodwill balances that reflect their underlying economic value. We also find a significant negative association between firms' accounting returns and goodwill impairment losses, which is consistent with the notion that prospering firms have less cause to recognize impairment losses and are less likely to do so.

Findings from regressing goodwill charges against income on IOS and control variables during both an AGAAP regime and an IFRS regime indicate that the association between goodwill impairment losses and firms' IOS during the IFRS regime is stronger than the association between goodwill amortization or write-offs and firms' IOS during the AGAAP regime. Such findings support the proposition that a goodwill impairment regime better reflects the diminution of investment opportunities than an amortization regime.

The results presented in our study provide valuable information for policy makers and standard setters involved in the regulation of goodwill accounting. They indicate that the

adoption of a goodwill impairment regime has enhanced the usefulness of financial statements for decision-making purposes as recognized goodwill is more likely to reflect firms' underlying economic attributes. As such, our findings provide important information for financial statement users who rely upon reported accounting data for decision making.

Our findings contribute to the existing academic literature in that we find that goodwill impairment losses are associated with firms' underlying economic attributes (both investment opportunities and accounting performance), whereas goodwill amortization expenses are not. This supports the argument that goodwill amortization is an arbitrary estimate of goodwill diminution and does not necessarily reflect economic reality.

The remainder of this paper is organized as follows. In Section 2 we develop our hypotheses about the relation between accounting policy choice and the IOS, particularly as it relates to goodwill accounting. We then describe the research design, including the test period, sample selection, data sources and model specifications, in Section 3. We next present our results and analysis in Section 4, with various additional tests reported and discussed in Section 5. Section 6 summarizes and concludes.

2. Hypothesis Development

Myers (1977) first introduced the concept of the IOS, establishing it on the premise that firm value depends on future discretionary expenditure. He explains that firm value is represented by a combination of assets-in-place and future investment (growth) options. Investment opportunities can be regarded as a call option on a real asset with the option's exercise price being the cost of future investment needed to acquire the asset. According to Myers (1977), growth opportunities differ from assets-in-place primarily *via* discretionary investment. That is, the value allocated to growth options is influenced by additional discretionary investment whereas assets-in-place are assets that do not rely on further

discretionary investment (Kole, 1991). As IOS captures projects which foster firm growth, the IOS can be viewed as a measure that encapsulates the growth prospects of the firm (Kallapur and Trombley, 1999).

Early investigations concerning the empirical association between IOS and accounting policy choice suggest that accounting decisions are made to align the interests of internal and external stakeholders (Zimmer, 1986; Godfrey, 1994; Skinner, 1993).² Skinner (1993) investigates the association between IOS and accounting choice for a large, randomly-chosen cross-section of firms for fiscal year 1987. He finds that the IOS primary influence on accounting choice is indirect, *via* managerial compensation agreements and lending contracts. By examining the incremental contribution of the IOS to contracting variables such as gearing, market capitalization and return on assets, he examines determinants of income increasing and decreasing accounting policy choices relating to three accounting treatments: inventory cost flow assumptions, depreciation method and goodwill amortization period. His results indicate that firms with more assets-in-place (thus, low growth firms) and with lending contracts and managerial compensation contracts that use accounting-based covenants and terms tend to implement income-increasing accounting choices *ex post* in an effort to influence debt constraints and compensation contracts. These findings support the notion that traditional opportunistic/wealth-transferring motivations continue to be an important influence on accounting choice after controlling for the effects of the IOS.

Skinner's (1993) investigation of the direct effect of the IOS on accounting choice does not provide statistically significant evidence for *ex ante* contracting efficiencies. He does, however, explain that as IOS influences contractual agreements, these contracting effects are

² See Holthausen (1990) and Watts and Zimmerman (1990) for summaries.

indirect IOS effects. Extending Skinner's (1993) study and focusing only on reported goodwill, which has a direct accounting analogy with economic IOS, Bradbury et al. (2003) use a small sample of firms more likely to have significant growth options and find that goodwill accounting discretion is exercised in a manner that reflects firms' IOS.

Similarly, Godfrey (1994) finds that asset specificity and firms' IOS are significant in explaining firms' unregulated foreign currency accounting policy choices. This is consistent with the notion that firms' accounting choices reflect their underlying economic foreign currency risk exposures and associated investment opportunities, thus supporting an efficient contracting perspective.

This outcome differs from Gupta (1995) who finds only weak evidence of any linkage between IOS and accounting choice related to partial or comprehensive income tax allocation. His results support the managerial opportunism perspective (i.e. an association between income tax allocation and size, leverage and the existence of bonus plans). Pincus and Wasley (1994) also find little empirical evidence that firms' IOS influences accounting choice. Examining voluntary and mandatory accounting changes made by US firms over a 1969-88 time period, the authors analyze IOS and accounting discretion indirectly by suggesting that firms facing similar economic activities (i.e., firms in the same industry) are likely to make comparable voluntary accounting choices in the same or following year. However, they find little evidence of industry/time period clustering in voluntary accounting choices. It must be noted that the study utilizes crude proxies for IOS and does not consider whether firms within an industry classification may have differing IOS.³

³ For example, Bradbury et al., (1993) state that the IOS can vary as firms transition through growth, maturity and decline phases.

Goodwill, which represents firm's investment opportunities arising from synergies and other firm-specific advantages not capable of being recognized separately, has been found to be associated with firms' IOS. Bradbury et al., (2003) find that accounting discretion is exercised, *via* estimates of goodwill's economic life, in a manner that reflects firms' underlying IOS. They find that firms with high IOS (high growth firms) amortize goodwill over a longer period than low-growth firms. Their results also indicate that goodwill accounting discretion has a stronger association with IOS variables than with traditional contracting variables that surrogate for proximity to debt covenant violation, political costs and managerial compensation incentives. The inclusion of IOS variables significantly increases the marginal contribution of the explanatory power of models of goodwill accounting discretion. Thus, the IOS, both independently and incrementally to contracting variables, is significant in explaining goodwill amortization periods. The authors attribute the differences between their results and Skinner's to their focus upon only goodwill accounting and its direct correspondence to economic IOS, the use of a sample with more varied IOS, the use of a continuous dependent variable and an institutional setting that enables a better proxy for IOS.⁴

Wong and Wong (2001) examine how New Zealand firms allocate the cost of firms' investments in subsidiaries between net tangible assets and acquired goodwill. They argue that their finding of a negative association between purchased goodwill and leverage is not caused by managers engaging in opportunistic behavior. Instead, they claim that acquiring firms with high levels of growth options will prefer to allocate a high proportion of the acquisition price to purchased goodwill to signal the firm's IOS to capital markets. Therefore, purchase price allocation between goodwill and net tangible assets is driven by the firm's IOS and it is the

⁴ The sample used in Skinner (1993) is heavily represented by firms with high levels of assets-in-place. Therefore, the sample may not be a true reflection of firms' IOS variation. Also, Bradbury et al (2003) use a more voluntary reporting regime (New Zealand) than the US setting in Skinner (1993), and one where greater reporting of current values enables better IOS proxies.

firm's IOS that efficiently determines leverage and goodwill accounting choice. Extending the finding from Wong and Wong (2001) suggests that the greater flexibility permitted under an impairment regime allows managers to better communicate firms' future investment opportunities to capital markets. These results are consistent with the proposition in Bradbury et al., (2003) who propose that although Myers (1977) and Skinner (1993) suggest there is a low likelihood that accounting based clauses and covenants are included in management and debt contracts for firms with high growth options,⁵ financial reporting that reflects firms' economic attributes can guide capital markets or at the very least, confirm existing market knowledge. Thus, there are incentives for managers to utilize accounting information to convey firms' true underlying economic attributes to capital markets. They further suggest that this provides a foundation for financial reports to be used as a basis for future contractual specifications. This notion is consistent with the Henning et al. (2004) finding of an association between goodwill write-offs prior to the introduction of SFAS 142 and economic goodwill proxies, as well as the literature indicating that goodwill accounting is value-relevant.

Godfrey and Koh (2009) find a negative association between goodwill impairment losses and US firms' IOS during 2002-2004. Consequently, firms with greater (less) investment opportunities maintain higher (lower) amounts of goodwill in their balance sheet, reflecting higher (lower) levels of economic goodwill. This suggests that in the initial years of the SFAS 142 impairment regime, firms' goodwill accounting approaches reflect the underlying economic attributes of their unidentifiable assets.

Our study examines whether the US findings from Godfrey and Koh (2009) generalize to the Australian impairment regime. More importantly, by also examining the association between

⁵ Given the complexities associated with measuring growth options and that the ability to realize the growth potential is dependent upon future discretionary expenditure, the likelihood that accounting based clauses and covenants are included in management and debt contracts for firms with high growth options is low (Myers, 1977; Skinner, 1993, as cited in Godfrey and Koh, 2009).

firms' goodwill accounting treatment and IOS in the previous amortization regime, we are able to directly compare the two reporting regimes and assess whether goodwill accounting under the IFRS impairment regime is more strongly associated with firms' underlying economic attributes than under the previous amortization regime.

Various regulators claim that an impairment regime facilitates a measure of goodwill that reflects firms' underlying economic value and investment opportunities (e.g., FASB, 2001a, IASB, 2005). We draw upon this argument and the findings of prior research indicating that managers utilize the discretion afforded to them to reflect firms' underlying economic attributes when they account for goodwill to predict that:

H₁: The higher firms' investment opportunities, the less they recognize as goodwill impairment during the IFRS regime.

The IASB (2005) states that an impairment regime provides users with more meaningful information than an approach in which goodwill is amortized. In particular, the IASB (2005) suggests that the useful life of goodwill and the pattern in which it decreases in value are generally not possible to predict, yet the calculation of amortization depends on such estimates. Hence, "*the amount amortized can at best be described as an arbitrary estimate of the consumption of acquired goodwill... and thus fails to provide useful information*" (IASB, 2005, p.344). The FASB (2001a) also supports this view, claiming that the useful life of goodwill is extremely difficult, if not impossible to accurately ascertain, and therefore, is not a faithful representation of the pattern of decline.

Amortization of goodwill is also based on the premise that the useful life of goodwill is finite and, therefore, ignores that notion that goodwill may have an indefinite useful life.

According to Wiese (2005), the value of a business, and consequently of its goodwill, does not necessarily deteriorate as it can be maintained or even augmented by diligent management and the realization of growth options. While this begs the question of where (recorded) purchased goodwill and (unrecorded) internally-generated goodwill begin and end, it nonetheless raises the argument that purchased economic goodwill does not necessarily diminish according to a systematic accounting amortization pattern. This view is echoed by former vice-president and financial controller of the large US company, Fortune Brands, Inc., Mike Mathieson, who states that goodwill can appreciate in value if correctly managed (as cited in Seetharaman et al., 2005). This suggests that the AGAAP goodwill regime may not facilitate a measure of goodwill that reflects its underlying economic value as firms are required to amortize goodwill even if it has appreciated in value. Further, even if goodwill does diminish in value, it does not necessarily do so on the straight-line basis previously required under the AGAAP regime.

Donnelly and Keys (2002) argue that an impairment regime will reflect a decline in goodwill value in a more meaningful manner than an amortization regime. This assertion is largely based on the premise that the impairment regime does not compel firms to automatically write-down goodwill. Wines et al. (2007) also state that *“any recognition of a loss as a result of a write-down in the valuation of goodwill will be more closely aligned to the real economic decline in value rather than an arbitrary amortization calculation”* (p.868). In addition, Glazer (2002) explains that an impairment test regime results in goodwill being evaluated through fair value measurements that reflect economic reality. According to McConnell (2002), as cited in Seetharaman et al., (2005), if an impairment regime is correctly implemented and enforced, it will provide financial statement users with greater insight and information than an arbitrary amortization regime.

The above arguments imply that a goodwill impairment regime is superior to an amortization regime as it better reflects underlying investment opportunities arising from business combinations.

Moehrle and Reynolds-Moehrle (2001) state that a goodwill impairment regime provides a better measure of recognized goodwill as the trigger for an impairment is a change in underlying economic or business conditions, as opposed to an arbitrary assessment. According to Conigliaro and Rudman (2002), the impairment regime also compels firms to consider the following economic and business factors when testing for goodwill impairment: key customer contracts, key management and personnel, significant changes in legal factors and business environment, any potential action or assessment by regulators, business competition and any expectations that a reporting unit may be disposed of.

Overall, the above discussion suggests that a rigorous and operational impairment regime provides managers with greater opportunity to reflect their inside knowledge of the economic attributes of their firms and the economic circumstances they face. It also suggests that, relative to amortization, an impairment regime provides users with more meaningful information as goodwill reporting is reflective of firms' current events and future investment opportunities, and not some arbitrary assessment. We therefore predict that:

H2: The association between firms' goodwill charges against income and investment opportunities is stronger during the IFRS regime than the AGAAP regime.

3. Research Design

Sample selection and data sources

In order to test H_1 , we select a sample that contains all firms listed on the Australian Securities Exchange (ASX) recognizing non-zero goodwill impairment in either 2006 or 2007 (e.g., during the IFRS regime) with sufficient data to construct all of the test variables. H_2 testing requires us to select an additional sample that contains all firms recognizing non-zero goodwill amortization or write-offs in either 2000 or 2001 (e.g., during the AGAAP regime) with sufficient data to test the hypothesis.⁶ This process results in 510 AGAAP and 119 IFRS observations. *Ceteris paribus*, the difference in sample sizes indicates that when the requirement to amortize goodwill was removed by IFRS adoption, almost 80 percent of firms elected not to impair their goodwill. All Australian industries, with the exception of the utilities sector, are represented in both samples (see Table 1).

INSERT TABLE 1 ABOUT HERE

We obtain accounting-based data to test the hypotheses from annual reports on the *Aspect Huntley FINANALYSIS* and *CONNECT4* databases. Goodwill impairment, amortization and write-offs are hand-collected from firms' annual reports. Share price data are obtained from the *DATASTREAM* database.

The IFRS sample consists of firms recognizing goodwill impairment losses. The IFRS regime does not permit firms to write-up the value of goodwill. If this was allowed, we would expect that firms with high or increasing investment opportunities would most likely write up the value of their reported goodwill. However, it is impossible to determine whether the firms that did not impair goodwill, if permitted, would have recognized a write-up of goodwill.

⁶ One consideration that ultimately led to the selecting of 2000 and 2001 as the test period for the AGAAP sample relates to the release date of Exposure Draft (ED) 109 *Business Combinations, Impairment of Assets, Intangible Assets*. ED 109 was released on 5 December 2002 and outlined the proposed accounting impairment regime which was subsequently adopted for the first full reporting periods ending on or after 1 January 2005. Kirkness (1987) found that firms began to react to the potential regulation in the year that a particular exposure draft was issued. Therefore, it is plausible that firms may have managed their reporting of goodwill subsequent to the release of ED 109 in an attempt to reduce the impact of regulatory changes. Given this possibility, the AGAAP sample excludes this transition period (2002 – 2005) as this could potentially compromise our findings.

Consequently, the IFRS sample includes only firms that recognized goodwill impairment losses. Further, it is impossible to ascertain whether firms that did not recognize an impairment loss were complying with the new standard and therefore did not have an impairment loss to record or were, in fact, not complying with the standard and thus not reporting impairment losses as they had incurred. As such, firms not recognizing goodwill impairments are excluded on the basis of potential non-compliance with IFRS.

Model Specifications

The following multiple regression models are used to empirically test H₁ and H₂.

$$GWCHARGE_t = \alpha_0 + \beta_1 IOS_t + \beta_2 SIZE_t + \beta_3 LEV_t + \beta_4 ROA_t + \beta_5 RET_t + \varepsilon_t \quad (1)$$

$$GWCHARGE_t = \alpha_0 + \beta_1 IOS_t + \beta_2 POST_t + \beta_3 POST_IOS_t + \beta_4 SIZE_t + \beta_5 LEV_t + \beta_6 ROA_t + \beta_7 RET_t + \varepsilon_t \quad (2)$$

where:

GWCHARGE _t	Goodwill impairment, amortization or write-offs measured as (Goodwill impairment losses _t , amortization _t or write-offs _t)/total assets _{t-1} .
IOS _t	Investment Opportunity Set (IOS) measured as the IOS factor derived from five investment opportunity measures.
POST _t	POST = 0 during the AGAAP regime (2000 and 2001) and 1 during the IFRS regime (2006 and 2007)
POST_IOS _t	POST multiplied by IOS factor.
SIZE _t	Natural logarithm total assets _t .
LEV _t	Total debt _t /total assets _t .
ROA _t	Earnings before interest _t /(total assets- outside equity interest _t).
RET _t	Stock return for the 12 month period t-1 to t measured as (Price _t – Price _{t-1})/Price _{t-1} .

When applied to the IFRS sample, Model (1) empirically tests whether firms' investment opportunities are associated with goodwill impairment losses during the IFRS regime (H₁). A negative and statistically significant coefficient on IOS suggests that goodwill charges (i.e. impairments) are associated with the firms' IOS, as predicted.

Model (1) is also applied to the AGAAP sample to investigate whether firms' investment opportunities are associated with goodwill amortization or write-offs during the AGAAP regime.

Although the model is not designed to test H_2 directly, it facilitates a preliminary analysis of whether the association between goodwill accounting treatment and firms' IOS differs between the two differing accounting regimes.

In order to empirically address H_2 , Model (2) examines whether the association between goodwill charges against income and firms' IOS is stronger during the IFRS regime than the AGAAP regime. The variable of interest, POST_IOS, captures the incremental contribution of the association between firms' IOS and goodwill accounting treatment during the IFRS regime.

Dependent Variable

For the IFRS regime, we measure $GWCHARGE_t$ as goodwill impairment losses reported at time t divided by total assets at $t-1$. For the AGAAP regime, we measure $GWCHARGE_t$ as goodwill amortization or write-offs reported at time t divided by total assets at time $t-1$.

Test Variable: Measuring Investment Opportunities

There is no consensus on how to measure firms' IOS. Similar to Baber, Janakirman and Kang (1996) and Gaver and Gaver (1993), we use a composite measure of firms' IOS obtained by factor analyzing five ratios that prior research has shown to proxy for firms' investment opportunities.⁷ This approach reduces the measurement error associated with the selection of a single ratio to capture firms' investment opportunities. The proxies used in the IOS factor analysis composite measure include: market-to-book value of assets⁸, MKBVA (Smith and Watts, 1992); market-to-book value of equity, MKBVE (Collins and Kothari, 1989; Lewellen et al., 1987; Chung and Charoenwong, 1991); earnings-to-price ratio, E/P (Kester, 1984; Chung

⁷ The suitability of data for factor analysis was examined. The correlation matrix for the IOS variables and the Bartlett's Test of Sphericity (Bartlett, 1954) supported the use of factor analysis.

⁸ Tobins q (market value of assets divided by the replacement value of assets) is another common proxy used to measure investment opportunities. Perfect and Wiles (1994) find that Tobins q and the market-to-book value of assets are highly correlated (correlation coefficient of approximately 0.96). Therefore, no distinction is made between Tobins q and the MKBVA ratio.

and Charoenwong, 1991; Smith and Watts, 1992); market value of assets to book value of property, plant and equipment, MVAPP&E (Skinner, 1993) and capital expenditure to market value of assets, CAPEXMVA (Smith and Watts, 1992).

For both the AGAAP and IFRS regimes, factor analyzing the IOS related variables results in one factor which encompasses market and book value ratios and consists primarily of MKBVA, MKBVE and MVAPP&E. CAPEXMVA and E/P have only minimal loadings on the factor. These loadings are consistent with previous research where market-to-book value measures loading strongly on the composite IOS measure (see Kallapur and Trombley, 1999 and 2001).

Table 2 describes the measurement of each of the investment opportunities ratios used to construct the IOS composite measure.

INSERT TABLE 2 ABOUT HERE

Control Variables

The debt covenant hypothesis suggests that covenants contained within debt agreements can influence the manner in which managers recognize assets as well as their subsequent accounting treatment, especially if the firm is close to covenant violation (Christie, 1990; Cotter, 1998; Mather 1999; Watts 1977; Whittred and Zimmer 1986; Watts and Zimmerman, 1990). However, Australian debt agreements commonly contain leverage constraints measured as the ratio of total liabilities to total tangible assets (Whittred and Zimmer, 1986; Cotter, 1998). Covenants that limit the amount of secured debt owed to other lenders typically require the deduction of intangible assets in Australian private debt agreements (Mather and Peirson, 2006). This suggests that debt constraints have less influence on goodwill accounting policies than on many other accounting policies. Goodwill accounting treatment can, however, influence earnings-based covenants such as interest coverage constraints. For example, goodwill amortization and impairments will decrease reported earnings (numerator of the interest coverage ratio) and thus,

reduce the interest coverage ratio. However, an earnings-based variable is not included as a control variable given that considerable variation exists in the specification and level of earnings-based debt covenants (Dichev and Skinner, 2002, Mather and Peirson, 2006). As debt covenants are only likely to be a significant influence on accounting policy choice when firms have substantial debt (Press and Weintrop, 1990), leverage is used as a control variable for debt contracting incentives to manage the amount of goodwill charges against income. Consistent with the debt covenant literature, we expect that a negative association will exist between leverage and goodwill charges against income. This follows from the argument that highly leveraged firms will aim to augment earnings to avoid covenant breaches.

Several prior studies have used firm size as a proxy for political costs.⁹ This relies on the assumption that large firms are more exposed to potential political costs than small firms and are, thus, more inclined to adopt accounting methods that will reduce reported earnings and the extent to which their accounts attract public scrutiny (Watts and Zimmerman, 1986). We expect that there will be a positive association between firm size and goodwill charges against income given the incentives to avoid political attention by deflating earnings. Caution must be exercised when interpreting results relating to firm size as this proxy may control for factors other than political costs such as managerial expertise, quality of financial reporting and economies of scale and scope (Ball and Foster, 1982).

We measure firms' financial performance with two proxies: return on assets (ROA) and share returns (RET). ROA provides an accounting measure of firm performance whereas RET is a market measure of performance. We expect that cash flow streams and fair value estimates of better performing firms will be greater than those of poorly performing firms. As such, it is less likely that recoverable amounts of cash generating units will fall below carrying amounts, which

⁹ The political cost hypothesis states that *ceteris paribus*, the larger the firm, the more likely the manager is to prefer accounting procedures that defer reporting earnings from current to future periods (Watts and Zimmerman, 1986).

would result in an impairment loss.¹⁰ Thus, we expect a negative association between goodwill charges against income and ROA or RET.

4. Results and Analysis

Descriptive Statistics

Table 3 reports descriptive statistics for the variables included in the regression models. The mean (median) reported goodwill impairment loss for the IFRS firms is approximately 9 percent (2 percent) of the previous year's total assets, which contrasts with the AGAAP sample mean (median) reported goodwill amortization or write-offs of approximately 2 percent (1 percent) of the previous year's total assets. On average, firms impairing goodwill in the IFRS sample recognized more goodwill charges against income relative to the previous year's total assets than in the AGAAP regime. The IFRS sample also displays a larger variation in the amount recognized as goodwill charges against income than the AGAAP sample with a standard deviation of 0.165 and an inter-quartile difference of approximately 10 percent of the previous year's total assets (untabulated). This contrasts with the AGAAP sample standard deviation of 0.055 and an inter-quartile difference of approximately 1 percent of the previous year's total assets. The largest percentage of goodwill charged against income relative to the previous year's total assets in the IFRS sample is 88 percent and 61 percent for the AGAAP sample.

INSERT TABLE 3 ABOUT HERE

Because IOS is a composite factor that is not measured on an integer or ratio scale, we do not draw conclusions based on the relative magnitudes or signs of the statistics. For example, negative measures do not indicate negative growth options, but are an artefact of the factor estimation. Nonetheless, larger IOS measures do indicate higher levels of growth opportunities

¹⁰ A counter argument is that an acquiring firm may have paid an excessive purchase price for a business combination (over-and-above identifiable net assets). As such, goodwill may be impaired in subsequent reporting periods regardless of firm performance.

than lower measures; it is the relativity that cannot be assessed. IOS descriptive statistics reported in Table 3 indicate a lower range of IOS for the IFRS firms than the AGAAP firms. The minimum and maximum IOS scores in the IFRS sample are -3.506 and 2.265 respectively, with a standard deviation of approximately 1. This compares to the AGAAP sample of IOS minimum and maximum scores of -1.938 and 3.250 with a standard deviation of -0.304. The mean IOS scores for each sample are -0.035 (IFRS) and -0.050 (AGAAP). The medians are 0.291 and -0.250 respectively.

The mean (median) goodwill reported for the AGAAP and IFRS sample firms is approximately 12 percent and 13 percent (6 percent and 5 percent) of total assets, respectively. The maximum goodwill recognized as a percentage of total assets in the AGAAP (IFRS) sample is approximately 62 percent (71 percent). The contrasting zero minimum goodwill for each sample arises because amortization or impairment in at least one of the two firm-years covered by each sample eliminates the goodwill balance for that year. Overall, the amount that sample firms recognized as goodwill is similar between the AGAAP and IFRS periods.

Descriptive statistics indicate that the AGAAP sample firms are slightly larger than the IFRS sample firms, with mean natural logarithms of total assets of 18.873 and 18.078 respectively. In addition, firms in both the AGAAP and IFRS samples range significantly in market value. For example, the market capitalization for the AGAAP (IFRS) sample ranges from a minimum of only \$90,000 (\$2,690,000) to a maximum of \$87,235,550,000 (\$71,436,680,000).

The AGAAP sample firms report stronger accounting returns than sample firms in the IFRS regime. The mean (median) ROA for the AGAAP sample is approximately 1 percent (5 percent), which compares with an IFRS sample mean (median) ROA of approximately -38 percent (-6 percent). Consistent with this is the finding that nearly 58 percent of IFRS sample firms reported a loss during the sample period compared to approximately 27 percent for the

AGAAP sample (untabulated). The difference in reported financial performance between samples is most likely a product of the selection criteria and regulatory regime pertaining to sample firms, and reflects endogeneity. A prerequisite for selection in the IFRS (AGAAP) sample is that a firm must have impaired (amortized or written-off) goodwill during the respective sample periods. Associated with this is the fact that there is no mandatory IFRS requirement to impair goodwill every period, whereas all AGAAP firms were mandatorily required to amortize goodwill, irrespective of underlying firm characteristics. The AGAAP sample would include all firms recognizing goodwill in the AGAAP period, including high performing firms that did not need to impair goodwill and that would not amortize it if they were not required to do so. These firms would not be included in the IFRS sample since they would not impair their reported goodwill under an impairment regime.

In contrast to the ROA distributions, stock returns (RET) reveal that, on average, the mean and median stock returns are higher in the IFRS period (30.3 percent and 0 percent respectively) than in the AGAAP period (-0.4 percent and -9.6 percent respectively). This is consistent with stronger economic fundamentals existing in Australia during 2006 and 2007 than the three prior years. Approximately 47 percent of the IFRS sample firms recorded negative returns compared to almost 60 percent of the AGAAP firms experiencing negative returns during the sample period (untabulated).

Firms in both samples report low average levels of debt relative to total assets. The mean (median) reported leverage is 22.3 percent (22.9 percent) in the AGAAP sample and 19.2 percent (11.7 percent) in the IFRS sample. However, the maximum leverage is very high for each sample (85 percent for the AGAAP sample; 94 percent for the IFRS sample).

Table 4 reports a correlation matrix for test variables in each of the regression models. Pearson correlations are displayed above the diagonal and Spearman correlations are shown

below the diagonal. The correlations between the independent variables are below levels that suggest multicollinearity in regression models (Kennedy, 1992). Variance Inflation Factors (VIF) and Tolerance scores reported in the multiple regression analysis (Tables 5 and 6) further indicate that multicollinearity is not a concern for the regression analyses reported in this study.¹¹

INSERT TABLE 4 ABOUT HERE

Untabled univariate *t*-tests reveal that the amount of goodwill charged against income for firms reporting during the AGAAP regime (mean=0.020, SD=0.053) is significantly less than the amount charged by firms reporting under the IFRS impairment regime (mean=0.092, SD=0.161); $t=8.776$, $p<0.000$, two-tailed). These results indicate that while managers are less likely to write down goodwill under an impairment regime (evidenced by the fact that our IFRS sample is smaller than our AGAAP sample), when they do write it down, they write down more than the average amortization charge that would otherwise apply across firms.

Multiple Regression Analysis

Table 5 presents the IFRS sample results for Model (1) and variants of this model. Statistics reported are based on White's heteroskedasticity consistent standard errors and covariance adjustments. It is noteworthy that a basic version of Model 1 that includes only the IOS variable explains approximately 22 percent of the variation in goodwill impairment charges. If the IOS variable is excluded and the control variables only are included, the model has approximately 40 percent explanatory power. The full model is most powerful, explaining almost 47 percent of variation in the impairment charges (F -statistic=21.75, $p<0.000$).

INSERT TABLE 5 ABOUT HERE

As predicted, the IOS coefficient is negative ($\beta_I=-0.051$, $p=0.013$ in the full model), indicating that higher IOS is associated with lower recognized goodwill impairment losses. In

¹¹ A tolerance level that is very small (below 0.10) indicates that multiple correlation with other variables is high and VIF values beyond 10 is commonly used as a basis to imply multicollinearity among variables (Pallant, 2007).

addition, a standard deviation increase in IOS is associated with a decrease in goodwill impairments of approximately 1 percent, *ceteris paribus*. These results support H₁ and indicate that goodwill impairment losses reflect firms' underlying investment opportunities.

SIZE is negatively associated with goodwill impairment losses ($\beta_2=-0.014$, $p=0.002$). This is inconsistent with the political cost argument that larger firms report greater goodwill impairment losses to lower their earnings in an attempt to limit wealth transfers imposed from potential adverse political actions. An alternative explanation for the negative association between firm size and goodwill impairment could be that larger firms potentially possess superior managerial expertise and resources (such as management accountants, auditors, financial advisers and qualified business appraisers) often needed to apply the complex impairment testing process outlined in the relevant impairment standard. In addition, smaller firms may not have the financial means to adequately test for impairment (McCarthy et al., 2002).

The significant negative association between the ROA accounting performance measure and goodwill impairment ($\beta_4=-0.067$, $p=0.005$) indicates that firms with superior reported earnings impair less goodwill. This result is intuitive as better performing firms are less likely to experience events giving rise to goodwill impairments. For example, estimated future net cash flows are likely to be greater for better performing firms, reducing the likelihood that the recoverable amounts of cash generating units whose impairment is assessed would fall below existing carrying values. Further, events that tend to erode the value of goodwill (such as a significant reduction in clientele) are less likely to occur for firms reporting superior accounting returns. This argument is consistent with the Wayman (2002) finding that firms reporting negative operating earnings are more likely to undergo impairment charges.

However, we find an association between market returns (RET) and goodwill impairment only at the 10 percent significance level. The counter-intuitive nature of this finding may imply that capital markets do not view goodwill impairment losses as useful information in the investment analysis decision or that there is noise in the RET proxy. Firms' indebtedness (LEV) is not a significant factor in explaining goodwill impairments ($p=0.472$).

Overall, our analysis indicates that firms' underlying economic investment opportunities and accounting performance are significant predictors of goodwill impairment losses under the IFRS regime, whereas the amount of leverage does not influence goodwill impairment losses. This implies that traditional wealth-transferring contracting features have little influence on firms' impairing goodwill.

Table 5 also presents the results from the regression analysis conducted to investigate the association between goodwill amortization or write-offs and firms' investment opportunities during the AGAAP regime. The explanatory power of all versions of Model 1 in the AGAAP goodwill accounting regime is lower than for the IFRS goodwill accounting regime. The basic version of the model that includes only the IOS variable does not even explain 1 percent of the variation in goodwill amortization and the IOS variable is not statistically significant. The most expanded version of the model explains only approximately 20 percent of goodwill amortization and write-off charges during this period. This is less variation than is explained by the IOS variable, in isolation, during the IFRS impairment regime. Only one independent variable, ROA is significant ($p<0.01$). The negative association between this variable and goodwill amortization or write-offs suggests that firms with better reported accounting performance amortize less goodwill.

Investment opportunities, size, leverage and market returns are not good predictors of AGAAP period goodwill amortization or write offs. These results support the argument that the

straight-line goodwill amortization requirement under the AGAAP regime is an arbitrary allocation does not reflect the underlying economic value of goodwill.

Table 6 reports the results for Model (2), using observations from both AGAAP and IFRS regulatory periods and provides a basis for directly addressing H₂. Using only the IOS and POST main and interaction variables, this model explains approximately 24 percent of the variation in goodwill charges over the combined test periods. The control variables in isolation explain approximately 35 percent, and the full model explains 43 percent of the variation (adjusted R²=0.43; *F*-statistic=68.71, *p*<0.000). The remaining discussion focuses upon this full model.

The insignificance of the IOS coefficient (*p*=0.782) indicates that there is no association between firms' investment opportunities and goodwill charges against income when observations from both the AGAAP and IFRS regimes are combined. Results from Model (1) suggest that the absence of statistically significant association between goodwill amortization or write-offs and firms' IOS during the AGAAP regime drives these results. To investigate this issue further, POST_IOS is incorporated to capture the incremental contribution IOS has, in the IFRS period only, to explaining goodwill charges against earnings. The coefficient for POST_IOS is negative ($\beta_3=-0.058$, *p*<0.01) demonstrating that the association between goodwill impairment and firms' investment opportunities during the IFRS regime is much stronger than the association between goodwill amortization and firms' investment opportunities during the AGAAP regime.

INSERT TABLE 6 ABOUT HERE

The coefficient of POST is significant and positive ($\beta_2=0.041$, *p*=0.004), indicating that greater amounts of goodwill charges against income, on average, are recognized during the IFRS regime, regardless of firms' attributes.

Results pertaining to control variables SIZE, LEV, ROA and RET are similar to those for Model (1) regressed on the IFRS sample. SIZE and ROA are both negatively associated with goodwill charges against income ($p < 0.01$), RET is significant at the 10 percent level only, and no statistically significant association exists between LEV and goodwill charges against income.

The results are consistent with the argument that the newly adopted IFRS goodwill impairment regime better reflects firms' underlying economic value and investment opportunities than under the previous amortization regime.

5. Sensitivity Testing

Removal of Repeat Observations

As the AGAAP sample includes firms recognizing goodwill amortization or write-offs in 2000 or 2001 and the IFRS sample contains firms recognizing goodwill impairment in 2006 or 2007, some firms are represented twice in each sample. To eliminate possible issues concerning non-independence of observations, we remove repeat observations from the AGAAP and IFRS sample to ensure that all observations in each sample relate to a unique firm. To do so, we randomly select firm-year observations to remove. Untabulated results are consistent with those reported in the main analysis.

Pre-test/post-test Control Group Analysis

We undertake a pre-test/post-test control group analysis in which the AGAAP and IFRS samples contain identical firms.¹² This results in 53 AGAAP observations and 43 IFRS observations.

Model (1) results for the IFRS sample reveal that the IOS and ROA coefficients remain negative and significant ($p < 0.05$). However, there are discrepancies between the pre-test/post-

¹² Limiting the analysis to firms operating in both regimes is achieved by restricting the sample to firms that amortize goodwill in either 2000 or 2001 and then subsequently impair goodwill in either 2006 or 2007.

test control group and the primary analysis in relation to the SIZE, LEV and RET control variables. In particular, firm size is no longer significant while leverage (LEV) is negative and significant ($p < 0.05$) and, in contrast to the primary results. There is no significant association between market returns (RET) and goodwill impairments ($p > 0.1$) which also differs slightly from the primary regression association at $p < 0.1$.

The results of Model (1) for the AGAAP sample are fairly consistent between the primary sample and the pre-test/post-test control sample. As in the main analysis, there is no association between firms' IOS and the amount of goodwill amortization or write-offs, suggesting that goodwill amortization regime does not reflect the diminution of investment opportunities.

In the Model (2) regressions, POST_IOS remains negative ($\beta_3 = -0.023$) and strongly significant ($p < 0.01$). This supports H₂ in that the association between firms' goodwill charges against income and investment opportunities is stronger during the IFRS regime than the AGAAP regime. While the pooled sample adjusted R² of 0.26 demonstrates less explanatory power than the primary analysis (adjusted R² = 0.43), this may be due to the reduced number of observations. A significant negative association is maintained between ROA and goodwill impairment losses, although the statistical significance is at the 5 percent level as opposed to the 1 percent level. Interestingly, SIZE is not significant in the pre-test/post-test control group regression, and RET is no longer significant. The LEV variable is slightly more significant.

Overall, the results from the pre-test/post-test control group are consistent with the main test results for both H₁ and H₂. However, there are some discrepancies between the pre-test/post-test sample and the primary sample in relation to the control variables.

Alternative IOS Measures

Alternative measures of firm's IOS are estimated to analyze the sensitivity of the definition of the IOS proxy used in the primary discussion. One alternative approach to IOS measurement incorporates only market-to-book measures such as market-to-book value of assets and equity in the factor analysis of IOS. Kallapur and Trombley (1999) find that the market-to-book ratios are the most highly correlated ratios with growth, whereas they fail to find a consistent positive relationship between growth and earnings-price ratios or intensity measures. Untabulated results from tests incorporating market-to-book-based IOS factor measures generate results and conclusions that are qualitatively similar to those discussed in the main findings. Using the individual ratio variables (a) market to book value of assets; (b) market to book value of equity; (c) earnings to price; (d) market value of assets to book value of property plant and equipment; and (e) capital expenditure to market value of assets in separate regressions yields mixed results that are, nonetheless, stronger for the IFRS sample than for the AGAAP sample. Overall, these results confirm that IOS is a complex variable best represented by a factor that incorporates multiple facets of growth opportunities, and that goodwill charges are more strongly associated with the factor that includes (IOS) elements in common to a range of ratios than with the single-ratio variables that load onto the factor.

Exclusion of Goodwill from variable definitions

To test the robustness of our results to the influence of goodwill accounting on some of our variable measures, we exclude recognized goodwill from asset measures and remove the effect of the current period goodwill amortization, write-offs and impairments from our earnings measures. This ensures that the goodwill accounting treatment for a given observation year does not distort variables. Specifically:

$$GWCHARGE_t = \alpha_0 + \beta_1 IOS_EXGW_t + \beta_2 SIZE_EXGW_t + \beta_3 LEV_EXGW_t + \beta_4 ROA_EXGW_t + \beta_5 RET_t + \varepsilon_t \quad (4)$$

$$GWCHARGE_t = \alpha_0 + \beta_1 IOS_EXGW_t + \beta_2 POST_t + \beta_3 POST_IOS_EXGW_t + \beta_4 SIZE_EXGW_t + \beta_5 LEV_EXGW_t + \beta_6 ROA_GW_t + \beta_7 RET_t + \varepsilon_t \quad (5)$$

where:

IOS_EXGW _t	IOS excluding the effects of current period goodwill impairment losses and excluding effects of recognized goodwill from earnings and asset measures used in the IOS composite measure.
SIZE_EXGW _t	Firm Size measured as the natural log of firm assets excluding goodwill.
LEV_EXGW _t	Total debt _t /(total assets _t - goodwill _t).
ROA_EXGW _t	(Earnings before interest _t + goodwill charges against income _t)/(total assets _t - goodwill _t)
All other variables are as defined previously.	

The results for the variables of interest (IOS and POST_IOS) are consistent with the previous reported findings thereby supporting H₁ and H₂. Control variables are also similar between the primary analysis and this sensitivity analysis. However, the following discrepancies relating to the control variables are noted: The RET variable in Model (1) regressed on the IFRS sample and in Model (2) increases in significance ($p < 0.01$ compared to $p < 0.1$). The SIZE variable in Model (1) regressed on the AGAAP sample becomes statistically significant ($p < 0.01$).

6. Conclusion

The change in Australian goodwill accounting regulation provides an opportunity to investigate the IASB and FASB claims that a goodwill impairment regime better reflects firms' underlying economic value than an amortization regime.

Our results indicate that the impairment regime enables firms with greater (less) investment opportunities to maintain (reduce) their goodwill balances that are the accounting analogy to the firms' economic IOS. Moreover, they suggest that managers take this opportunity under the IFRS impairment regime to better align goodwill reporting with the firms' underlying economic circumstances.

A direct comparison between the two accounting regimes (AGAAP and IFRS) indicates that the association between goodwill impairment losses and firms' IOS during the IFRS regime

is much stronger than the association between goodwill amortization or write-offs and firms' IOS during the AGAAP regime. Our finding is consistent with the expectation that firms' goodwill charges against income better reflect the diminution of investment opportunities under a goodwill impairment regime than an amortization regime. This suggests that an impairment regime is a superior method of capturing a measure of goodwill that mirrors its underlying economic attributes (both investment opportunities and economic performance). These results support the statements by the FASB and the IASB that a goodwill impairment regime better reflects the underlying economic value of goodwill than an amortization regime and provides support for accounting regulators' decisions to adopt an impairment based accounting standard for goodwill.

References

- Australian Accounting Standards Board. (1996). Australian Accounting Standard AASB 1013 Accounting for Goodwill. Australian Accounting Standard Board, Melbourne.
- Australian Accounting Standards Board. (2002). *Exposure Draft ED 109 Request for Comment on IASB ED 3 'Business Combinations' IASB ED of Proposed Amendments to IAS 36 'Impairment of Assets' and IASB 38 'Intangible Assets' and AASB added material.* Melbourne: Australian Accounting Standard Board.
- Australian Accounting Standards Board. (2004a). *Australian Accounting Standard AASB 3 Business Combinations.* Melbourne: Australian Accounting Standard Board.
- Australian Accounting Standards Board. (2004b). *Australian Accounting Standard AASB 136 Impairment of Assets.* Melbourne: Australian Accounting Standard Board.
- Australian Accounting Standards Board. (2004c). *Australian Accounting Standard AASB 138 Intangible Assets.* Melbourne: Australian Accounting Standard Board.
- Australian Accounting Standards Board (2004d). *Australian Accounting Standard AASB 1013 Accounting for Goodwill.* Melbourne: Australian Accounting Standard Board.
- Baber, W.R., Janakiraman, S.N. and Kang, S.H. (1996). Investment opportunities and the structure of executive compensation. *Journal of Accounting and Economics*, 21(1), 297-318.
- Ball, F. and Foster, G. (1982). Corporate Financial Reporting: A Methodological Review of Empirical Research. *Journal of Accounting Research*, 20(Supplement), 161-234.
- Bartlett, M.S. (1954). A note on the multiplying factors for various chi square approximations. *Journal of the Royal Statistical Society*, 16(Series B), 296-8.
- Bradbury, M.E., Godfrey, J.M. and Koh, P.S. (2003). Investment opportunity set influence on goodwill amortization. *Asia Pacific Journal of Accounting and Economics*, 10(1), 57-79.
- Bugeja, M. and Gallery, N. (2006). Is older goodwill value relevant? *Accounting and Finance*, 46(1), 519 – 535.
- Chauvin, K. and Hirschey, M. (1994). Goodwill, profitability, and the market value of the firm. *Journal of Accounting and Public Policy*, 13(1), 159-180.
- Choi, W. W., Kwon, S. S. and Lobo, G. J. (2000). Market Valuation of Intangible Assets. *Journal of Business Research*, 49(1), 35-45.
- Christie, A.A. (1990). Aggregation of test statistics: An evaluation of the evidence on contracting and size hypotheses. *Journal of Accounting and Economics*, 12(1-3), 15-36.
- Chung, K. and Charoenwong, C. (1991). Investment options, assets-in-place, and the risk of stocks. *Financial Management*, 20(3) 21-33.
- Churyk, N.T. (2005). Reporting Goodwill: Are the New Accounting Standards Consistent with Market Valuations? *Journal of Business Research*, 58(10), 1353-1361.
- Collins, D.W. and Kothari, S.P. (1989). An analysis of inter-temporal and cross-sectional determinants of earnings response coefficients. *Journal of Accounting and Economics*, 11(2-3), 143-81.
- Conigliaro, R. and Rudman, D. (2002). *Rules on accounting for goodwill revised.* Retrieved from http://www.grassicpas.com/pdf/NYLJ_5_28_02.htm.
- Cotter, J. (1998). Utilisation and restrictiveness of covenants in Australian private debt contracts, *Accounting and Finance*, 38(1), 181-196.
- Dichev, I. and Skinner, D. (2002). Large-sample evidence on debt covenant hypothesis. *Journal of Accounting Research*, 40(4), 1091-1123.

- Donnelly, T. and Keys, R. (2002). Business combinations and intangible assets. *Australian CPA*, 72(4), 68-69.
- Financial Accounting Standards Board. (2001a). *Summary of Statement No. 142: Goodwill and Other Intangible Assets (Issued 6/01)*. Retrieved from <http://www.fasb.org/st/summary/stsum142.shtml>.
- Financial Accounting Standards Board. (2001b). *Statement of Financial Accounting Standards 141 Business Combinations*. Norwalk, Connecticut: Financial Accounting Standards Board.
- Financial Accounting Standards Board. (2001c). *Statement of Financial Accounting Standards 142 Goodwill and Other Intangible Assets*. Norwalk, Connecticut: Financial Accounting Standards Board.
- Gaver, J. and Gaver, K. (1993). Additional evidence on the association between the investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Accounting and Economics*, 16(1), 125–160.
- Glazer, R.T. (2002). *New accounting for business combinations, intangibles and goodwill impairment*. Retrieved from <http://www.nysscpa.org/chapters/statenisland/combinations.doc>.
- Godfrey, J.M. (1994). Foreign currency accounting policy: The impact of asset specificity, *Contemporary Accounting Research*, 10(1), 643-671.
- Godfrey, J. M. and Koh, P.S. (2001). The relevance to firm valuation of capitalising intangible assets in total and by category. *Australian Accounting Review*, 11(2), 39-48.
- Godfrey, J. M. and Koh P.S. (2009). Goodwill impairment as a reflection of investment opportunities. *Journal of Accounting and Finance (forthcoming)*.
- Gowthorpe, C. and Amat, O. (2005). Creative accounting: some ethical issues of macro- and micro-manipulation. *Journal of Business Ethics*, 57(1), 55-64.
- Gupta, S. (1995), Determinants of the choice between partial and comprehensive income tax allocation: the case of the domestic international sales corporation. *The Accounting Review*, 70(3), 489–511.
- Henning, S. L., Lewis, B. L. and Shaw, W.H. (2000). Valuation of the components of purchased Goodwill. *Journal of Accounting Research*, 38(1), 375-386.
- Henning, S. L., Shaw, W. H. and Stock, T. (2004). The amount and timing of goodwill write-offs and revaluations: evidence from U.S. and U.K. firms. *Review of Quantitative Finance and Accounting*, 23(1), 99-121.
- Holthausen, R. (1990). Accounting method choice: Opportunistic behavior, efficient contracting and information perspectives. *Journal of Accounting and Economics*, 12(1), 207-218.
- International Accounting Standards Board (2004a). *International Accounting Standard IFRS 3 Business Combinations*. London: International Accounting Standards Board.
- International Accounting Standards Board (2004b). *International Accounting Standard IAS 136 Impairment of Assets*. London: International Accounting Standards Board.
- International Accounting Standards Board (2004c). *International Accounting Standard IAS 138 Intangible Assets*. London: International Accounting Standards Board.
- International Accounting Standards Board (2005). *International Financial Reporting Standards (IFRS) including Basis of Conclusions*. London: International Accounting Standards Board.
- Kallapur, K. and Trombley, M.A. (1999). The association between investment opportunity set proxies and realised growth. *Journal of Business Finance and Accounting*, 26(3) and (4), 505–519

- Kallapur, K. & Trombley, M.A. (2001). The investment opportunity set: determinants, consequences and measurement. *Managerial Finance*, 27(3), 3-15.
- Kennedy, P. (1992). *A Guide to Econometrics* (3rd ed.), Oxford: Basil Blackwell Ltd.
- Kester, W.C. (1984). Today's options for tomorrow's growth. *Harvard Business Review*, 62(2), 153-60.
- Kirkness, J. J. (1987). The Impact of AAS 18. *The Chartered Accountant in Australia*, 57(1), 49-51.
- Kole, S.R. (1991). A cross-sectional investigation of managerial compensation from an ex ante perspective. *Simon Graduate School of Business Administration*, Rochester, NY: University of Rochester.
- Lewellen, W., Loderer, C. and Martin, K. (1987). Executive compensation contracts and executive incentive problems: An empirical analysis. *Journal of Accounting and Economics*, 9(3), 287-310.
- Massoud, M.F. and Raiborn, C.A. (2003). Accounting for goodwill: Are we better off? *Review of Business*, 24(2), 26-32.
- Mather, P. (1999). Financial covenants in Australian private debt contracts: incidence, measurement rules and monitoring. *Australian Accounting Review*, 6(1), 63-72.
- Mather, P. and Peirson, G. (2006). Financial covenants in the markets for public and private debt. *Accounting and Finance*, 46(1), 285-307.
- McCarthy, M., Christian, C. & Schneider, D.K. (2002). SFAS 141 and 142: relevance to prior and future mergers and acquisitions in the oil, gas and energy industry. *Petroleum Accounting and Financial Management Journal*, 21(3), 53-63.
- Miller, M.C. (1995). Goodwill discontent: The meshing of Australian and International accounting policy. *Australian Accounting Review*, 5(1), 3-16.
- Moehrle, S.R. and Reynolds-Moehrle, J.A. (2001). Say good-bye to pooling and goodwill amortisation. *Journal of Accountancy Online*, Retrieved from <http://www.aicpa.org/pubs/jofa/sept2001/moehrle.htm>.
- Myers, S.C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.
- Pallant, J. (2007). *SPSS Survival Manual* (3rd edn). Sydney, Australia: Ligare Book Printer.
- Perfect, S.B. and Wiles, K.M. (1994). Alternative constructions of Tobin's q: An empirical comparison. *Journal of Empirical Finance*, 1(1), 313-341.
- Press, E.G. & Weintrop, J.B. (1990). Accounting-based constraints in public and private debt agreements: Their association with leverage and impact on accounting choice. *Journal of Accounting and Economics*, 12(1-3), 65-95.
- Seetharaman, A., Sreenivasan, J., Sudha, R. and Yee, T.Y. (2005). Managing impairment of goodwill. *Journal of Intellectual Capital*, 7(3), 338-353.
- Skinner, D. J. (1993). The investment opportunity set and accounting procedure choice. *Journal of Accounting and Economics*, 16(1), 407-445.
- Smith, C. and Watts, R.L. (1992). The investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Financial Economics*, 17(1), 263-292.
- Watts, R.L. (1977). Corporate financial statements, a product of the market and political processes. *Australian Journal of Management*, 4(1), 53-75.
- Watts, R. (2003a). Conservatism in accounting part I: Explanations and implications. *Accounting Horizons*, 17(1), 207-221.
- Watts, R. (2003b). Conservatism in accounting part II: Evidence and research opportunities. *Accounting Horizons* 17(1), 287-301.

- Watts, R.L. and Zimmerman, J.L. (1986). *Positive accounting theory*, Englewood Cliffs, New Jersey: Prentice-Hall.
- Watts, R.L. and Zimmerman, J.L. (1990). Positive accounting theory: A ten-year perspective. *The Accounting Review*, 65(1), 131-156.
- Wayman, R. (2002). *Impairment charges: the good, the bad and the ugly*. Retrieved from <http://www.investopedia.com/articles/analyst/110502.asp>.
- Whittred, G. & Zimmer, I. (1986). Accounting information in the market for debt. *Journal of Accounting and Finance*, 26(2), 19-33.
- Wiese, A. (2005). Accounting for goodwill: The transition from amortisation to impairment – an impact assessment. *Meditari Accountancy Research*, 13(1), 105-120.
- Wines, G., Dagwell, R. and Windsor, C. (2007). Implications of the IFRS goodwill accounting treatment. *Managerial Accounting Journal*, 22(9), 862-880.
- Wong, J. and Wong, N. (2001). The investment opportunity set and acquired goodwill. *Contemporary Accounting Research*, 18(1), 173-96.
- Wyatt, A., 2005, Accounting recognition of intangible assets: Theory and evidence on economic determinants. *The Accounting Review*, 80 (3), 967-1003.
- Zimmer, I. (1986). Accounting for interest by real estate developers. *Journal of Accounting and Economics*, 8(1), 37–51.

Table 1
Sample Industry Distributions

GICS	Pooled		AGAAP		IFRS	
	N	%	N	%	N	%
Energy (10)	12	1.91	8	1.6	4	3.4
Materials (15)	56	8.90	46	9.0	10	8.4
Industrials (20)	151	24.01	129	25.3	22	18.5
Consumer Discretionary (25)	149	23.69	124	24.3	25	21.0
Consumer Staples (30)	54	8.59	53	10.4	1	.8
Health Care (35)	44	7.00	28	5.5	16	13.4
Financials (40)	66	10.49	47	9.2	19	16.0
Information Technology (45)	74	11.76	58	11.4	16	13.4
Telecommunication (50)	19	3.02	13	2.5	6	5.0
Utilities (55)	4	0.64	3	0.6	-	-
Total	629	100	510	100	119	100

Key: GICS refers to the Global Industry Classification Standard. Based on their principle business activity, are assigned to one of 10 sectors. AGAAP refers to Australian Generally Accepted Accounting Practices. IFRS refers to International Financial Reporting Standards.

Table 2
Investment opportunity set variables used to construct IOS composite measure

Variable	Description	Calculation
1. MKBVA _t	Market-to-book value of assets	Market value of assets (MVA _t) divided by book value of total assets (BVA _t)
2. MKBVE _t	Market-to-book value of equity	Market value of equity (MVA _t) divided by book value of equity (BVA _t)
3. E/P _t	Earnings-to-price ratio	Earnings per share (EPS _t) divided by price per share (PPS _t)
4. MVAPP&E _t	Market value of assets to book value of PPandE	Market value of assets (MVA _t) divided by book value of property, plant and equipment (BVPP&E _t)
5. CAPEXMVA _t	Capital expenditure to market value of assets	Capital expenditure (CAPEX _t) divided by market value of assets (MVA _t)

Table 3
Descriptive Statistics

Panel A: AGAAP Regime Sample (n=510)					
Variables	Mean	Median	Std. Dev.	Minimum	Maximum
GWCHARGE	0.019	0.006	0.055	0.000	0.606
IOS	-0.050	-0.250	-0.304	-1.938	3.250
SIZE	18.873	18.512	2.106	13.883	26.649
LEV	0.223	0.229	0.159	0.000	0.854
ROA	0.013	0.050	0.137	-0.521	0.208
RET	-0.004	-0.096	0.630	-0.833	2.700
<i>Others</i>					
GW	65.705	5.920	174.122	0.000	738.078
GW%TA	0.121	0.064	0.160	0.001	0.621
MKTCAP	1723.693	72.852	7498.524	0.902	87235.555
Panel B: IFRS Regime Sample (n=119)					
Variables	Mean	Median	Std. Dev.	Minimum	Maximum
GWCHARGE	0.094	0.018	0.165	0.000	0.881
IOS	-0.035	0.291	0.999	-3.506	2.265
SIZE	18.078	17.769	2.743	13.491	26.776
LEV	0.192	0.117	0.212	0.000	0.937
ROA	-0.377	-0.056	0.814	-3.524	0.272
RET	0.303	0.000	1.343	-0.790	7.670
<i>Others</i>					
GW	107.928	2.877	281.946	0.000	1043.574
GW%TA	0.131	0.054	0.1914	0.000	0.714
MKTCAP	2493.604	49.382	9721.069	2.689	71436.683
Panel C: Pooled Sample (n=629)					
Variables	Mean	Median	Std. Dev.	Minimum	Maximum
GWCHARGE	0.033	0.006	0.092	0.000	0.881
IOS	-0.047	-0.173	0.961	-3.506	3.250
POST	0.189	0.000	0.392	0.000	1.000
POST_IOS	-0.007	0.000	0.433	-3.506	2.2645
SIZE	18.723	18.356	2.260	13.491	26.776
LEV	0.217	0.222	0.171	0.000	0.937
ROA	-0.061	0.047	0.404	-3.524	0.272
RET	0.054	-0.082	0.821	-0.833	7.670
<i>Others</i>					
GW	73.693	5.403	199.459	0.000	1043.574
GW%TA	0.123	0.057	0.166	0.000	0.714
MKTCAP	1869.352	64.265	7963.700	0.902	87235.555

Key: $GWCHARGE_t$ = Goodwill impairment, amortization or write-offs measured as $(\text{Goodwill impairment losses}_t, \text{amortization}_t \text{ or write-offs}_t) / \text{total assets}_{t-1}$. In the AGAAP regime, $GWCHARGE$ = goodwill amortization_t or write-offs_t/total asset_{t-1}. In the IFRS regime, $GWCHARGE$ = goodwill impairment losses_t/total asset_{t-1}; IOS_t = Investment Opportunity Set (IOS) measured as the IOS factor derived from five investment opportunity measures; $POST_t$ = the goodwill accounting regime, coded 0 if it is during the AGAAP regime (2000 and 2001) and 1 if t is during the IFRS regime (2006 and 2007); $POST_IOS_t$ = an interaction variable; $SIZE_t$ = Firm size measured as the natural logarithm total assets_t; LEV_t = Leverage as measured by total debt_t/total assets_t; ROA_t = Return on Assets as measured by earnings before interest_t/(total assets- outside equity interest_t); RET_t = Stock return as measured by a firm's stock return for the 12 month period t-1 to t; GW = Capitalized goodwill balance at balance date (\$m); $GW\%TA$ = Capitalized goodwill balance at balance date_t as a percentage of total assets_{t-1}; $MKTCAP$ = Market capitalization at balance date (\$m)

Table 4
Correlations

Pearson correlation coefficients appear above the diagonal and Spearman correlations appear below the diagonal

Panel A: AGAAP Regime Sample
(n=510)

	IOS	SIZE	LEV	ROA	RET
IOS	1.000	.189**	-.186**	.372**	.392**
SIZE	.254**	1.000	.369**	.368**	.059
LEV	-.174**	.402**	1.000	.223**	.011
ROA	.483**	.308**	.123**	1.000	.177**
RET	.444**	.179**	.075	.266**	1.000

Panel B: IFRS Regime Sample (n=119)

	IOS	SIZE	LEV	ROA	RET
IOS	1.000	.412**	-.030	.515**	.219*
SIZE	.450**	1.000	.355**	.510**	-.056
LEV	.045	.475**	1.000	.219*	-.168
ROA	.475**	.672**	.310**	1.000	-.231*
RET	.436**	.222*	-.056	.253**	1.000

Panel C: Pooled Sample (n=629)

	IOS	SIZE	LEV	ROA	RET	POST	POST_IOS
IOS	1.000	.238**	-.147**	.302**	.313**	.006	.450**
SIZE	.269**	1.000	.371**	.381**	-.007	-.138**	.221**
LEV	-.153**	.423**	1.000	.187**	-.068	-.070	-.014
ROA	.407**	.404**	.173**	1.000	-.161**	-.378**	.462**
RET	.441**	.171**	.030	.229**	1.000	.146**	.151**
POST	.129**	-.165**	-.131**	-.248**	.094*	1.000	-.032
POST_IOS	.432**	.166**	-.003	.117**	.210**	.375**	1.000

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). Variables: GWCHARGE_t = Goodwill impairment, amortization or write-offs measured as (Goodwill impairment losses, amortization, or write-offs_t)/total assets_{t-1}. In the AGAAP regime, GWCHARGE = goodwill amortization, or write-offs_t/total asset_{t-1}. In the IFRS regime, GWCHARGE = goodwill impairment losses_t/total asset_{t-1}; IOS_t= Investment Opportunity Set (IOS) measured as the IOS factor derived from five investment opportunity measures; POST_t = the goodwill accounting regime, coded 0 if it is during the AGAAP regime (2000 and 2001) and 1 if t is during the IFRS regime (2006 and 2007); POST_IOS_t = an interaction variable; SIZE_t = Firm size measured as the natural logarithm total assets_t; LEV_t = Leverage as measured by total debt_t/total assets_t; ROA_t = Return on Assets as measured by earnings before interest_t/(total assets- outside equity interest_t); and RET_t=Stock return as measured by a firm's stock return for the 12 month period t-1 to t.

Table 5
Regressing Goodwill Impairments on IOS and Control Variables during the IFRS and AGAAP Regime

$$GWCHARGE_t = \alpha_0 + \beta_1 IOS_t + \beta_2 SIZE_t + \beta_3 LEV_t + \beta_4 ROA_t + \beta_5 RET_t + \varepsilon_t \quad (1)$$

Variable	IFRS REGIME			AGAAP REGIME		
	Coefficient (<i>p</i> -value)					
Constant	0.091 <i>0.000</i>	0.451 <i>0.000</i>	0.320 <i>0.000</i>	0.019 <i>0.000</i>	0.041 <i>0.011</i>	0.046 <i>0.006</i>
IOS	-0.079 <i>0.002</i>	- <i>0.000</i>	-0.051 <i>0.013</i>	-0.004 <i>0.143</i>	- <i>0.000</i>	0.003 <i>0.438</i>
SIZE	- <i>0.000</i>	-0.022 <i>0.000</i>	-0.014 <i>0.002</i>	- <i>0.000</i>	-0.001 <i>0.322</i>	-0.001 <i>0.234</i>
LEV	- <i>0.000</i>	0.077 <i>0.145</i>	0.038 <i>0.472</i>	- <i>0.000</i>	-0.026 <i>0.175</i>	-0.019 <i>0.429</i>
ROA	- <i>0.000</i>	-0.081 <i>0.014</i>	-0.067 <i>0.004</i>	- <i>0.000</i>	-0.121 <i>0.001</i>	-0.125 <i>0.001</i>
RET	- <i>0.000</i>	0.002 <i>0.644</i>	0.009 <i>0.069</i>	- <i>0.000</i>	0.004 <i>0.434</i>	0.003 <i>0.591</i>
R ²	0.228	0.425	0.490	0.005	0.198	0.200
Adjusted R ²	0.221	0.405	0.468	0.002	0.192	0.192
F-Statistic	34.474	21.081	21.752	2.368	31.196	25.233
F-Statistic (Prob)	0.000	0.000	0.000	0.124	0.000	0.000
Observations (n)	119	119	119	510	510	510
			Tolerance VIF			Tolerance VIF
IOS			0.693 1.457			0.695 1.446
SIZE			0.661 1.512			0.753 1.327
LEV			0.832 1.202			0.767 1.303
ROA			0.741 1.356			0.791 1.264
RET			0.777 1.287			0.863 1.159

Variables: $GWCHARGE_t$ = Goodwill impairment, amortization or write-offs measured as (Goodwill impairment losses_{*t*}, amortization_{*t*} or write-offs_{*t*})/total assets_{*t-1*}. In the AGAAP regime, $GWCHARGE_t$ = goodwill amortization_{*t*} or write-offs_{*t*}/total asset_{*t-1*}. In the IFRS regime, $GWCHARGE_t$ = goodwill impairment losses_{*t*}/total asset_{*t-1*}; IOS_t = Investment Opportunity Set (IOS) measured as the IOS factor derived from five investment opportunity measures; $POST_t$ = the goodwill accounting regime, coded 0 if it is during the AGAAP regime (2000 and 2001) and 1 if it is during the IFRS regime (2006 and 2007); $POST_IOS_t$ = an interaction variable; $SIZE_t$ = Firm size measured as the natural logarithm total assets_{*t*}; LEV_t = Leverage as measured by total debt_{*t*}/total assets_{*t*}; ROA_t = Return on Assets as measured by earnings before interest_{*t*}/(total assets- outside equity interest_{*t*}); and RET_t = Stock return as measured by a firm's stock return for the 12 month period t-1 to t.

p values reported are based on one-tail tests.

Table 6
Regressing Goodwill Impairments on IOS and Control Variables on Pooled Sample

$$GWCHARGE_t = \alpha_0 + \beta_1 IOS_t + \beta_2 POST_t + \beta_3 POST_IOS_t + \beta_4 SIZE_t + \beta_5 LEV_t + \beta_6 ROA_t + \beta_7 RET_t + \varepsilon_t \quad (2)$$

POOLED SAMPLE			
Variable	Coefficient (<i>p</i> -value)	Coefficient (<i>p</i> -value)	Coefficient (<i>p</i> -value)
Constant	0.019 <i>0.000</i>	0.164 <i>0.001</i>	0.114 <i>0.000</i>
IOS	-0.004 <i>0.144</i>	-	0.001 <i>0.782</i>
POST	0.072 <i>0.000</i>	-	0.041 <i>0.000</i>
POST_IOS	-0.075 <i>0.004</i>	-	-0.058 <i>0.004</i>
SIZE	-	-0.007 <i>0.003</i>	-0.005 <i>0.001</i>
LEV	-	0.002 <i>0.915</i>	-0.011 <i>0.631</i>
ROA	-	-0.104 <i>0.001</i>	-0.081 <i>0.000</i>
RET	-	0.003 <i>0.490</i>	0.006 <i>0.068</i>
R ²	0.241	0.349	0.437
Adjusted R ²	0.237	0.345	0.430
F-Statistic	66.054	83.695	68.714
F-Statistic (Prob)	0.000	0.000	0.000
Observations (n)	629	629	629
		Tolerance	VIF
IOS		0.668	1.498
POST		0.915	1.093
POST_IOS		0.757	1.322
SIZE		0.735	1.376
LEV		0.798	1.253
ROA		0.736	1.359
RET		0.816	1.225

Variables: $GWCHARGE_t$ = Goodwill impairment, amortization or write-offs measured as (Goodwill impairment losses_t, amortization_t or write-offs_t)/total assets_{t-1}. In the AGAAP regime, $GWCHARGE_t$ = goodwill amortization_t or write-offs_t/total asset_{t-1}. In the IFRS regime, $GWCHARGE_t$ = goodwill impairment losses_t/total asset_{t-1}; IOS_t = Investment Opportunity Set (IOS) measured as the IOS factor derived from five investment opportunity measures; $POST_t$ = the goodwill accounting regime, coded 0 if it is during the AGAAP regime (2000 and 2001) and 1 if t is during the IFRS regime (2006 and 2007); $POST_IOS_t$ = an interaction variable; $SIZE_t$ = Firm size measured as the natural logarithm total assets_t; LEV_t = Leverage as measured by total debt_t/total assets_t; ROA_t = Return on Assets as measured by earnings before interest_t/(total assets- outside equity interest_t); and RET_t = Stock return as measured by a firm's stock return for the 12 month period t-1 to t.

p values reported are based on one-tail tests.