The value-relevance of goodwill reported under IFRS 3 versus IAS 22

Anne-Marie Eloff*

School of Accountancy, University of Stellenbosch, Bosman Street, Stellenbosch, 7602, South Africa

Charl de Villiers

Department of Accounting, AUT University, Auckland, New Zealand

Department of Accounting, University of Pretoria, South Africa

*Corresponding author. Email: aeloff@sun.ac.za

The application of International Financial Reporting Standard (IFRS) 3, which became compulsory for financial periods beginning on or after 31 March 2004, significantly changed the initial and subsequent measurement of goodwill in annual reports. This change in the accounting treatment of goodwill was not universally accepted and there has been ongoing debate around the efficacy of the new goodwill treatment. This study uses a revised Ohlson-type value-relevance model (Ohlson, 1995) to examine the association between the goodwill balance reported and the market value of a company before and after the introduction of IFRS 3. The findings show that the goodwill balance reported according to IFRS 3 provides information that is more value-relevant than the previous International Accounting Standard (IAS) 22 treatment. In the light of the ongoing debate around the accounting treatment of goodwill, this study provides regulators and researchers with valuable information to further assess the efficacy of the IFRS 3 goodwill treatment.

Keywords: Goodwill, IFRS 3, IAS 22, Value-Relevance

1. Introduction

The accounting treatment of goodwill has been described as one of the most controversial topics in the accounting discipline (Bugeja & Gallery, 2006, p. 521). Accounting standards allow for purchased goodwill (the difference between the purchase price of a business taken over as a going concern and the value of the assets and liabilities taken over) to be recognised as an intangible asset in the financial statements. Users of financial statements are however not always convinced that the goodwill disclosed reflects the true nature of goodwill (Gynther, 1969, p. 247). Controversy around the treatment of goodwill is not a new occurrence; for example, Canning (1929) wrote:

> Accountants, writers on accounting, economists, engineers, and the courts, have all tried their hands at defining goodwill, at discussing its nature, and at proposing means of valuing it. The most striking characteristic of this immense amount of writing is the number and variety of disagreements reached. (Canning, 1929, p. 38).

The numerous changes to the goodwill accounting standards can be taken as evidence that the accounting treatment of goodwill is still an ongoing challenge.

In 2001, the Financial Accounting Standards Board (FASB) in the United States (US) adopted Statement of Financial Accounting Standards (SFAS) 142, *Goodwill and other intangible assets*, in order "to improve the transparency of accounting and reporting business combinations, including the accounting for goodwill and other intangible assets" (FASB, 2001, B4). To improve the representational faithfulness of goodwill, one of the main changes implemented by SFAS 142 was to eliminate the requirement that goodwill be amortised. Instead, an adequate impairment test must be performed annually on the goodwill balance. Prior studies showed that the application of a fair value measurement to assess the goodwill balance results in the goodwill balance better reflecting economic reality (Seetharaman, Sreenivasan, Sudha, & Yee, 2006, p. 342), thus improving the relevance of the amount to users of financial statements.

In their quest for international convergence and global harmonisation, the International Accounting Standards Board (IASB) in March 2004 issued a new International Financial Reporting Standard (IFRS), namely IFRS 3, *Business Combinations* (IASB, 2004b). IFRS 3 focuses on the accounting treatment of business combinations (and thus purchased goodwill) and follows some of the main principles of SFAS 142. In South Africa, the South African Institute of Chartered Accountants (SAICA) immediately adopted IFRS 3, which superseded AC 131 *Business Combinations* (SAICA, 1999). IFRS 3 was implemented with the objective to "improve the quality of, and seek international convergence on, the accounting for business combinations" (IASB, 2004b, IN6).

However, IFRS 3 was not universally accepted as improving the relevance and reliability of goodwill disclosure, as evidenced by the strongly opposing views laid before the IASB (IASB, 2004a). Those not in favour of IFRS 3 believe that it introduced uncertainty and thus scope for creative accounting (Wines, Dagwell, & Windsor, 2007, p. 868). Ultimately, the question as to whether or not IFRS 3 provides information that is more value-relevant to users remains unanswered.

This study investigates whether users of financial statements perceive purchased goodwill (referred to as goodwill in the remainder of this article) reported under IFRS 3 as more value-relevant than when it was reported under IAS 22. According to Barth, Beaver, and Landsman (2001), value-relevance studies provide valuable insights into standard setters. Therefore, this study uses a modified version of the Ohlson (1995) model to investigate the association between the goodwill amount reported under IFRS 3 relative to the goodwill amount reported under IAS 22, and the market value of a company. Various prior studies investigating how the market perceives IFRS 3 focus only on one of the changes introduced by IFRS 3. For example, in two recent studies, the association between firms' investment opportunities and the goodwill charges were tested (impairment charge post-IFRS 3 or an amortisation charge pre-IFRS 3) and it was found that an impairment regime better matches firms' economic circumstances (Godfrey & Koh, 2009) and is a better reflector of the underlying economic value of goodwill (Chalmers, Godfrey, & Webster, 2011). This approach limits the sample to companies that report goodwill impairments and therefore does not provide a comprehensive evaluation of the value-relevance of the goodwill balance as determined under IFRS 3 (Lee, 2011, p. 238). By using a balance sheet approach we are able to evaluate the efficiency of IFRS 3 as a whole, which enables us to provide evidence on whether the implementation of IFRS 3 meets the IASB's objectives.

In another recent study, Lee (2011) investigates the effect of implementing SFAS 142 by also focusing on the goodwill balance instead of only the impairment charge of goodwill. Lee shows that the goodwill balance reported under SFAS 142 is a better predictor of future

cash flows than the goodwill balance reported pre-SFAS 142. Our study triangulates with Lee by also focusing on the goodwill balance, but whereas Lee investigates the predictive value of the goodwill balance reported under SFAS 142 on future cash flows, this study focuses on the association between the IFRS 3 goodwill balance and the market value of equity. Market value of equity is used since it is regarded as a better estimator of an entity's intrinsic value (Subramanyam & Venkatachalam, 2007) that is a reflection of investors' assessment of the current value (*ex ante*) of future cash flows. According to Subramanyam and Venkatachalam (2007, p. 461), future operating cash flows are not appropriate to use as a proxy for an entity's intrinsic value since a finite set of future cash flows will not measure the complete intrinsic value of an entity. Future cash flows also reflect what happened (*ex post*) and do not represent investors' views of likely cash flows (*ex ante*). Another difference between current market value and future cash flows is that the market value of shares reflects both investors' expected cash flows and investors' risk assessment of expected cash flows. Therefore, we cannot assume that the cash flows that actually eventuate are the same as the *ex ante* market assessment reflected in the market value of shares. The approach we follow thus provides a different perspective to investigate the value-relevance of reported goodwill to equity investors, a perspective that cannot be assumed to yield the same results as a cash-flow-based examination, such as that undertaken by Lee (2011).

To test the research question an ordinary least square (OLS) regression is estimated for a sample of 529 company-year observations, consisting of all companies listed on the main board of the Johannesburg Stock Exchange (JSE) that 1) report a positive goodwill balance by applying IAS 22; or 2) report a positive goodwill balance for the first time by applying IFRS 3, during the sample period of 2001 to 2009. This selection criteria enables us to investigate the impact of the IFRS 3 as a whole and not just the impact of the change from an amortisation to an impairment regime. The result of the study shows that the goodwill balance reported under IFRS 3 is more value-relevant to users of financial statements than the goodwill balance reported under IAS 22. This provides evidence that the objectives of the IASB were met with the implementation of IFRS 3 and thus that more value-relevant information is provided to users of financial statements by reporting goodwill according to IFRS 3 instead of IAS 22.

The remainder of this article is organised as follows: section 2 provides background on the change in the accounting treatment of goodwill due to the replacement of IAS 22 with IFRS 3; section 3 discusses the relevant prior literature with regards to goodwill and its value to users of financial statements; sections 4 and 5 respectively develop the hypothesis and discuss the research design followed in the study; section 6 discusses the sample and data used in the study; section 7 discusses the results; and section 8 concludes.

2. Background

In South Africa there was no definitive standard prescribing the accounting treatment of goodwill until AC 131 was issued in June 1999 (Wiese, 2005, pp. 105–106). AC 131 was based on International Accounting Standard (IAS) 22 *Business Combinations* (Revised); (IASB, 1993) and became effective for all periods commencing on or after 1 January 2000.

IAS 22 (and thus AC 131) permitted two alternative methods to account for business combinations, namely the pooling of interest method or the purchase method. It also gave users an option regarding how the purchase method could be applied, by allowing users to measure the identifiable assets acquired and liabilities assumed initially using either a benchmark treatment or an allowed alternative treatment.

The possibility to account for substantially similar transactions in dissimilar ways in terms of IAS 22 was viewed by analysts and other users of financial statements as weakening the reliability and comparability of the information provided, which effectively reduces the value-relevance of the information provided to users of financial statements (IASB, 2004b, IN5). They also argued that by permitting two methods to account for business combinations, the opportunity to structure transactions in order to achieve a desired accounting result was created (IASB, 2004a, BC38).

Agreeing with the views expressed, the IASB began a project in 2001 to review IAS 22 (IASB, 2004a, BC2). As a result, IFRS 3 *Business Combinations* was issued for periods commencing or contracts entered into on or after 31 March 2004. In South Africa, IFRS 3 was approved by the Accounting Practices Board and immediately adopted without any change, effectively replacing IAS 22 (IASB, 2004b).

IFRS 3 brought some fundamental changes to the accounting of goodwill. First, it requires that only the purchased method be used when accounting for a business combination that falls within the scope of IFRS 3. Second, to further enhance comparability, IFRS 3 also requires that the identifiable assets, liabilities and contingent liabilities of the acquirer that are recognised as part of allocating the cost of the combination must be measured initially by the acquirer according to the allowed alternative treatment option in IAS 22. The alternative treatment option requires that the identifiable assets, liabilities and contingent liabilities be initially measured at their fair values at the acquisition date. The use of the benchmark treatment option as permitted by IAS 22 is not allowed by IFRS 3.

Third, IFRS 3 requires the impairment of the goodwill balance annually instead of amortising the balance over its useful life. This requirement resulted in significant changes in reporting earnings and elicited the greatest reaction from analysts and other users of financial statements.

Other changes as a result of IFRS 3 to the amount of goodwill recognised initially are set out in Table 1.

These requirements resulted in a change in the nature of goodwill. Goodwill measured according to IAS 22 included items such as contingent liabilities and intangible assets, which were not separately accounted for in the statement of financial position of the acquiree. Since IFRS 3 requires that these items are recognised separately in the group's

Table 1. Further changes required by IFRS 3 to the amount of goodwill recognised.

1. Liabilities for terminating or reducing the activities of the acquiree is only allocated to the business combination if an existing liability, according to IAS 37 *Provisions, Contingent liabilities and Contingent assets*, exists at the acquisition date. Previously a provision for terminating or reducing the activities of the acquiree was recognised as part of allocating the cost of the business combination (provided specified criteria were met by the acquirer) even if the acquiree had no such liability.
2. The acquiree's contingent liabilities are recognised separately on the acquisition date, if their fair values are reliably measurable. Previously the acquiree's contingent liabilities were not recognised separately.
3. The probability recognition criterion for recognising intangible assets during a business combination as required by IAS 22 was not included in IFRS 3.
4. No negative goodwill is recognised: instead, the excess of an acquirer's interest in the net fair value of an acquiree's identifiable assets, liabilities and contingent liabilities over cost is immediately recognised in profit and loss.

statement of financial position, the goodwill balance in terms of IFRS 3 relates mainly to overpayments and synergies.

3. Literature review

Recent studies on the accounting for goodwill centre around two issues: should goodwill be recognised as an asset, and if goodwill is recorded as an asset, should the amount recognised be amortised systematically or tested annually for impairment? (Bugeja & Gallery, 2006, p. 521).

Various empirical studies set out to investigate how the market perceives goodwill. These studies can be categorised into two streams of literature: studies attempting to test whether market participants regard recorded goodwill to be of relevance when valuing the equity of a firm (Bugeja & Gallery, 2006, pp. 519–520); and studies investigating whether more value-relevant information is provided to users of financial statements by amortising the goodwill balance systematically, or by writing down the value of goodwill if it is impaired.

Results from previous value-relevance studies have consistently shown that market participants view goodwill as an asset (Bugeja & Gallery, 2006, p. 522). These studies argue that goodwill should be recorded as an asset in the statement of financial position if the recognition of goodwill provides value-relevant information to market participants that is used to value an entity (McCarthy & Schneider, 1995, p. 72). In one of the earlier studies, McCarthy and Schneider (1995) examine the association between the reported goodwill balance and the market value of a firm's equity. They find a significant and positive correlation between the reported goodwill balance and the firm's market value of equity and interpret this as evidence that the market does perceive goodwill as an asset and that goodwill is incorporated in the valuation of firms. Subsequent studies by Jennings, Robinson, Thompson, and Duvall (1996), Barth and Clinch (1996), and Godfrey and Koh (2001) further confirm the positive association between reported goodwill and an entity's market value (Bugeja & Gallery, 2006, p. 522). These findings show that recognised goodwill is of value to market participants (Chalmers et al., 2011, p. 635).

The requirement of IFRS 3 to test goodwill annually for impairment instead of amortising the balance over a finite life provided researchers with a new platform to investigate whether the accounting treatment of goodwill provides users of financial statements with value-relevant information.

In a recent study, Godfrey and Koh (2009) use this fundamental change in the treatment of goodwill to investigate whether a firm's underlying investment opportunities are reflected by the firm's goodwill impairment write-offs. They argue that an impairment in goodwill reflects a decrease of economic goodwill and thus a decrease in a firm's investment opportunities. The impairment regime therefore enables firms to reduce reported goodwill balances if the firm shows less investment opportunities or economic goodwill. Their findings suggest that firms' investment opportunities are significantly negatively associated with impairment write-offs, suggesting that firms' economic circumstances are matched by the impairment regime.

In a related study, Chalmers et al. (2011) investigated whether an impairment regime or a systematic amortisation regime better reflects the underlying economic value of goodwill. They directly compare the two regimes by studying whether there is an association between goodwill accounting charges and income or firms' economic investment opportunities, in both an amortisation and an impairment regime. They find a much stronger association between goodwill impairment losses and firms' investment opportunities than between

goodwill amortisation or write-offs and firms' investment opportunities. They conclude that their results suggest that an impairment regime is superior in reflecting the underlying economic value of goodwill.

As for SFAS 142, there is limited evidence in prior literature of the efficacy of IFRS 3 as a whole, as most prior studies investigate this by focusing only on the implementation of the impairment test and elimination of systematic amortisation (Lee, 2011, p. 237). Our study differs from prior research, as it not only investigates whether an impairment regime provides more relevant information to users, but also evaluates all the changes brought about by IFRS 3 for the initial and subsequent measurement of goodwill. Similarly, a study by Lee (2011) investigates whether goodwill is a better predictor of future cash flows since the adoption of SFAS 142. Lee focuses on the goodwill balance instead of only the impairment charge of goodwill and therefore provides comprehensive evidence of how users of financial statements perceive the implementation of SFAS 142. Lee finds that the goodwill balance reported after the implementation of SFAS 142 is significantly positively related to future cash flows, but that the goodwill balance reported before the implementation of SFAS 142 is not significantly associated with future cash flows. He interpreted this as evidence that SFAS 142 does improve the representational faithfulness of goodwill accounting.

This study extends the work of Lee (2011) by investigating the association between the goodwill balance and the market value of an entity in a South African environment. Market value of equity is regarded as a better estimator of an entity's intrinsic value (Subramanyam & Venkatachalam, 2007) and therefore this approach enables us to investigate the value-relevance of goodwill to equity providers.

4. Hypothesis development

In accordance with the objective for issuing IFRS 3, the IASB is of the opinion that the application of IFRS 3 to account for business combinations will enhance the comparability, reliability and usefulness of information provided to users of financial statements (IASB, 2004a). The IASB argues that more useful information is provided to users of financial statements which enables them to evaluate the investment made by management as well as the ensuing performance of that investment by applying the purchase method, as the values exchanged in a business combination are recognised by this method (IASB, 2004a, BC45). They further argue that by recognising all assets acquired and liabilities and contingent liabilities assumed at their fair values, greater predictive value is provided to users of financial statements (IASB, 2004a, BC45). In addition, the IASB argues that the usefulness of information provided to users of financial statements will also be enhanced if goodwill is tested annually, or more frequently, for impairment rather than amortised over an arbitrary period (IASB, 2004a, BC142).

Arguments made in the academic literature that an impairment regime reflects a more meaningful value of goodwill than an amortisation regime are largely based on the premise that under an impairment regime companies are not forced to reduce the value of goodwill if its value has not declined (Chalmers et al., 2011, p. 641). Wines et al. (2007, p. 868) argue that by applying an impairment test of goodwill, the valuation of goodwill will be a better reflector of the true economic value of goodwill, rather than only reflecting a random calculation of "cost less accumulated amortisation". Chalmers et al. (2011, pp. 641–642) argue that an impairment regime also provides managers with a better platform to reflect the economic circumstances faced by the entity.

On the other hand, those opposing IFRS 3 believe that it is "fraught with subjectivity and ambiguity" that potentially introduce uncertainty and thus make room for creative accounting (Wines et al., 2007, p. 868). This could lead to unreliable information being provided to users of financial statements. Proponents of the amortisation regime argue that it is not as misleading to the market as an impairment-only approach, as it is a simple and well-understood practice that is not subject to regular judgement calls (IASB, 2004c, D09). Furthermore, they also argue that goodwill is an asset that is substituted by internally generated goodwill as it is consumed (IASB, 2004a, BC139). If the asset is not amortised and thus recognised in profit or loss, the internally generated goodwill is effectively recognised in its place (IASB, 2004a, BC139) which is prohibited by IAS 38 *Intangible Assets* (IASB, 2011). As the impairment test does not differentiate between acquired goodwill and goodwill internally generated after the business combination (Wiese, 2005, p. 111), proponents of an amortisation regime believe that using only an impairment regime will result in the inconsistent treatment of internally generated goodwill, which will lead to the diminishing of comparability and reliability of information provided to users of financial statements (IASB, 2004a, BC139). The possibility that the requirements of IFRS 3 does not result in more value-relevant goodwill information can thus not be ruled out *ex ante*.

Findings from prior literature, however, support the arguments made in the academic literature as well as the arguments made by the IASB, namely that more meaningful information is provided to users when applying IFRS 3 rather than IAS 22 (Chalmers et al., 2011, p. 642).

Given the arguments and the results of prior literature, we predict that the goodwill balance reported according to the requirements of IFRS 3 will be more relevant to users when valuing a company than the goodwill balance reported under IAS 22. The hypothesis of this study, therefore, stated in alternative form, is as follows:

The goodwill balance reported according to IFRS 3 is more value-relevant to market participants than the goodwill balance reported according to IAS 22.

5. Research design

Value-relevance research has been used in the literature to examine the association between the market value of equity and accounting numbers (Barth et al., 2001, p. 95). According to Beaver (2002, p. 459) and Barth et al. (2001, p. 80), an accounting number is regarded as value-relevant if it has a predicted, significant association with the market value of a security. By performing value-relevance studies, one is able to assess whether a particular accounting number provides users of financial statements with information that helps explain the valuation of an entity's equity (Barth et al., 2001, p. 78).

In the conceptual framework for financial reporting, the IASB states that financial information must be relevant and must faithfully represent what it purports to represent in order to be useful (IASB, 2010). These criteria are empirically operationalised with value-relevance tests, as an accounting number will only be value-relevant if it faithfully represents and reflects information that is relevant to users of financial statements when valuing an entity, otherwise it will not be reflected in share prices (Barth et al., 2001, p. 80). An accounting number is defined as being relevant if it is capable of influencing the decisions made by users (IASB, 2010). By performing a value-relevance study we will be able to ascertain whether the goodwill balance reported under IFRS 3 provides information that better explains the valuation of a firm's equity than the goodwill balance

reported under IAS 22. Thus we will be able to provide empirical evidence on whether some of the objectives of IFRS 3 were in fact met.

Following Gow, Ormazabal, and Taylor (2010), a two-way-cluster-robust standard errors OLS regression is estimated. Gow et al. conclude that this method is appropriate to use when cross-sectional and time-series dependence is present in data sets.

To address the research question, a modified Ohlson (1995) valuation model is used. The basic form can be expressed as follows:

$$\mathrm{MVE}_{it} = \beta_0 + \beta_1 \mathrm{BVE}_{it} + \beta_2 \mathrm{NI}_{it} + \varepsilon.$$

The Ohlson (1995) model expresses the market value of an entity as a function of the entity's book value of equity and earnings (Bugeja & Gallery, 2006, p. 524), thus providing a direct link between the market value of an entity and its accounting numbers (Barth, 2000, p. 13), which makes it a popular model for value-relevance testing. The statement of financial position may not reflect all information that is value-relevant to users of financial statements due to measurement error (Barth & Landsman, 1995, p. 100). Therefore, the Ohlson (1995) model includes accounting earnings to capture information regarding asset and liability values that are not recognised in the statement of financial position (Barth, 2000, p. 13).

Similar to the research models used in Barth, Clement, Foster, and Kasznik (1998) and Lee (2011), this study uses an Ohlson (1995) model that is modified to include separate variables for goodwill, the post-IFRS 3 period, and an interaction between these two variables. This equation can be expressed as follows:

$$\begin{aligned}\mathrm{MVE}_{it} = {} & \beta_0 + \beta_1 \mathrm{BVE}\textit{less}\mathrm{GW}_{it} + \beta_2 \mathrm{GW}_{it} + \beta_3 \mathrm{NI}_{it} + \beta_4 \mathrm{IFRS3} + \beta_5 \mathrm{IFRS3} \times \mathrm{GW}_{it} \\ & + \beta_6 \mathrm{GROWTH}_{it} + \varepsilon.\end{aligned}$$

MVE is the share price three months after year end. A lagged share price is used to allow sufficient time for the company to release its annual report and for the market to react to the information in the annual report (Bugeja & Gallery 2006, p. 525; Harris & Muller, 1999, p. 298). BVE*less*GW is the book value of equity less the goodwill balance reported on year end; GW is the goodwill balance as reported at year end and NI is profit after tax before goodwill charges. Goodwill charges are dependent on the goodwill balance recorded in the statement of financial position. Thus to avoid any mechanical effects of goodwill accounting in the statement of comprehensive income and in the statement of financial position on the performance measure, goodwill charges are excluded (Aboody, Barth, & Kasznik, 1999, p. 158; Lee, 2011, p. 242). Goodwill charges are defined as "amortisation of goodwill" in the pre-IFRS 3 period and as "impairment of goodwill" in the post-IFRS 3 period. IFRS3 is an indicator variable that equals 1 if the goodwill balance is reported according to IFRS 3 and 0 otherwise. GROWTH is the difference between the current year's reported sales and the sales reported for the previous year and is included in the estimation to control for the possibility that the results are driven by self-selection bias (McCarthy & Schneider, 1995, p. 80). Mostly, it is growing entities that purchase other entities, which raises the concern that the goodwill produced from these acquisitions proxies for growth options that will affect share prices (McCarthy & Schneider, 1995, p. 80). Therefore, as suggested by McCarthy and Schneider (1995, p. 80), the GROWTH variable is included to control for companies' growth options. Finally, *i* and *t* denote companies and years, respectively.

Following Barth et al. (1998) the independent variables that represent levels (i.e., currency values) are deflated by the number of issued shares at year end. This is done to mitigate problems associated with heteroscedasticity (Bugeja & Gallery, 2006, p. 527). Heteroscedasticity is a potential problem, as the specified model is estimated using observations from a sample of firms in cross-section and over time (Barth & Clinch, 2009, p. 255). Issued shares are used as a deflator, as Barth & Clinch (2009, p. 283) find that the use of issued shares as a deflator more consistently results in correct inferences caused by scale effects (which include heteroscedasticity).[1]

This study focuses on whether the goodwill balance reported under IFRS 3 is more informative or value-relevant than the goodwill balance reported under IAS 22 and therefore the variable of interest is the coefficient of the interactive variable (IFRS3 × GW) (β_5), which indicates the incremental value of the goodwill balance reported in the post-IFRS 3 period relative to the goodwill balance reported in the pre-IFRS 3 period in relation to the market value of equity. Based on the results obtained by prior studies and discussed in the literature review section of this article we expect that the goodwill balance reported under IFRS 3 will be more value-relevant relative to the goodwill balance reported under IAS 22 and thus that a significant positive relation exists between the interaction variable (IFRS3 × GW) and the market value of equity.

6. Sample and data

The sample consists of all companies listed on the JSE main board which report a positive goodwill balance in the statement of financial position by applying IAS 22, and all companies reporting goodwill for the first time by applying IFRS 3 during the period 2001 to 2009, as obtained from McGregor's Bureau of Financial Analysis data stream (INET BFA - INET Expert, 2012). The focus of the study is to determine whether the change in accounting brought about by IFRS 3 has improved the value-relevance of the reported goodwill balance and therefore the sample is selected based on firms with positive goodwill balances (Lee, 2011, p. 244). This treatment is similar to that of Lee (2011, p. 244). The initial sample consisted of 1336 company-year observations that report positive goodwill during the sample period. Of these, 196 observations are dropped due to missing data and 19 observations are eliminated due to the accounting policy for goodwill being a mix between IFRS 3 and IAS 22. A further 149 company-year observations with negative book value of equity or profit after tax are excluded, as prior studies find a difference in the association between positive and negative earnings with share price (Collins, Pincus, & Xie, 1999; Hayn, 1995). Finally, 428 company-year observations are excluded in the post-IFRS 3 period. These observations relate to companies that report goodwill in the post-IFRS 3 and in the pre-IFRS 3 periods. By excluding these company-years, companies reporting goodwill in the pre-IFRS 3 period are only compared to companies reporting goodwill for the first time in the post-IFRS 3 period. This enables us to investigate the impact that IFRS 3 as a whole has and not just the impact of the change from an amortisation to an impairment regime. "Missing values" for goodwill expenses are treated as zero. To mitigate for the effect of outliers on the results, all observations with an absolute studentised residual greater than 3 are deleted. This results in a further 15 company-years (14 company-years in the Ohlson, 1995 model) being excluded from the sample.

Table 2 summarises the sample collection criteria and Table 3 shows how the data is spread over the sample period. All financial statement information required is obtained from McGregor's Bureau of Financial Analysis data stream (INET BFA - INET Expert, 2012). To determine when firms adopted IFRS 3, the financial statements for all the

Table 2. Sample selection criteria.

Description	Number of companies	Number of company-years
Listed companies reporting positive goodwill balance on McGregor BFA (2012) for the period 2001–2009.	264	1336
Less company-years with missing data.	(30)	(196)
Less company-years with a mixed goodwill policy.	–	(19)
Less company-years reporting negative NI or book value of equity.	(14)	(149)
Less company-years reporting goodwill in the pre- and post-IFRS 3 periods.		(428)
Less company-years regarded as outliers.	(3)	(15)
	217	**529**

Table 3. Company-year observations by year.

	Number of observations	
Sample period	Pre-IFRS 3	Post-IFRS 3
2001	59	–
2002	77	–
2003	91	–
2004	79	1
2005	13	13
2006	1	18
2007	–	36
2008	–	58
2009	–	83
	320	**209**

2004 and 2005 company-year observations were hand collected and the accounting policies have been inspected.

Untabulated results show that the companies included in the sample represent 18 of the 19 listed super sectors on the JSE, which suggests that the results are not affected by industry clustering. The super sector with the highest frequency (23%) of company-years in the sample is "Industrial goods and services". This suggests that high-technology industry companies are more likely to report goodwill and, in this respect, the sample is similar to that of Lee (2011, p. 245).

Tables 4 to 6 provide descriptive statistics and univariate correlations for variables. Table 4 shows distribution statistics for the pooled sample across the testing period. A skewed distribution is clearly visible due to the difference between the means and medians of the variables. Skewedness of financial data used in cross-sectional models is to be expected and valid inferences can still be drawn from the results obtained (Cahan, Courtenay, Gronnewoller, & Upton, 2000; Rees, 1997, p. 1125). Table 5 reports distribution statistics for the pre-IFRS 3 (n = 320) and post-IFRS 3 (n = 209) sample periods.

Table 6 reports the Pearson (above diagonal) and Spearman (below diagonal) correlations. Due to some of the independent variables showing high and statistically significant correlations of 0.7 or more with one another, the data are also examined for multicollinearity. Variance inflation factors (VIF) are examined and the highest VIF is 2.839. This is well

Table 4. Full sample descriptive statistics.

Variable	Mean	Standard deviation	1st quartile	Median	3rd quartile
MVE	16.39	27.99	1.15	5.45	16.95
BVE*less*GW	9.63	18.87	0.69	2.73	8.62
GW	1.49	4.78	0.08	0.27	0.99
NI	1.79	3.28	0.15	0.62	2.05
GROWTH	6.07	17.99	0.17	1.10	5.28

Notes: $n = 529$. The variables for firm i at year t are defined as follows: MVE is share price three months after year end; BVE*less*GW is the book value of equity less the goodwill balance reported on year end; GW is the goodwill balance as reported on year end; NI is net income after tax for the year, less goodwill charges; GROWTH is the difference between the current year's reported sales and the sales reported for the previous year. All independent variables that represent levels are deflated by issued shares on year end.

Table 5. Pre-IFRS 3 period and post-IFRS 3 period descriptive statistics.

	Pre-IFRS 3 period sample			Post-IFRS 3 period sample		
Variable	Mean	Median $n = 320$	Std dev	Mean	Median $n = 209$	Std dev
MVE	17.64	7.35	25.73	14.47	3.30	31.10
BVE*less*GW	10.88	4.05	19.44	7.71	1.51	17.83
GW	1.53	0.23	4.71	1.42	0.40	4.90
NI	2.04	0.83	3.34	1.42	0.33	3.15
GROWTH	6.78	1.38	20.36	4.99	0.91	13.56

Notes: $n = 529$. The variables for firm i at year t are defined as follows: MVE is share price three months after year end; BVE*less*GW is the book value of equity less the goodwill balance reported on year end; GW is the goodwill balance as reported on year end; NI is net income after tax for the year, less goodwill charges; GROWTH is the difference between the current year's reported sales and the sales reported for the previous year. All independent variables that represent levels are deflated by issued shares on year end.

Table 6. Pearson (above diagonal) and Spearman (below diagonal) correlation coefficients.

	MVE	BVE*less*GW	GW	NI	GROWTH
MVE		0.695	0.518	0.735	0.550
		(.000)	(.000)	(.000)	(.000)
BVE*less*GW	0.841		0.149	0.765	0.312
	(.000)		(.001)	(.000)	(.000)
GW	0.462	0.324		0.383	0.375
	(.000)	(.000)		(.000)	(.000)
NI	0.875	0.865	0.454		0.348
	(.000)	(.000)	(.000)		(.000)
GROWTH	0.581	0.520	0.398	0.604	
	(.000)	(.000)	(.000)	(.000)	

Notes: $n = 529$. Two-tailed p-values are reported in parentheses. The variables for firm i at year t are defined as follows: MVE is share price three months after year end; BVE*less*GW is the book value of equity less the goodwill balance reported on year end; GW is the goodwill balance as reported on year end; NI is net income after tax for the year, less goodwill charges; GROWTH is the difference between the current year's reported sales and the sales reported for the previous year. All independent variables that represent levels are deflated by issued shares on year end.

below the usual benchmark of 10 (Burns & Burns, 2008, p. 386) and the even more conservative benchmark of 5 (as used in Riedl, 2004, p. 832), suggesting that it is unlikely that multicollinearity is an issue of concern.

7. Results

The results of the regression analyses are reported in Table 7.

7.1 *Pre-test*

Panel A shows the results when performing a two-way-cluster-robust standard errors OLS regression on the modified Ohlson (1995) valuation model. The coefficients of both BVE and NI are, as expected, positive and significantly associated with the MVE (respectively: 0.868, p-value < .01; 2.578, p-value < .01).

This pre-test suggests that the data behaves as expected.

7.2 Main results

Panel B shows the results of the two-way-cluster-robust standard errors OLS regression analysis performed to test the research question. The association between IFRS3 × GW, the main variable of interest, shows, as predicted, a positive and statistically significant

Table 7. Results of the regression analyses.

		Panel A		Panel B	
	Predicted sign	Coefficient	p-value	Coefficient	p-value
Constant		2.652	.001	3.163	.009
		(3.528)			(2.636)
BVE	+	0.868	.000		
		(6.955)			
BVE*less*GW	+			0.607	.000
					(4.332)
GW	+			0.743	.066
					(1.839)
NI	+	2.578	.005	2.120	.025
		(2.855)			(2.252)
IFRS3	±			−2.221	.160
					(−1.408)
IFRS3 × GW	+			2.114	.000
					(4.739)
GROWTH	±			0.357	.000
					(4.587)
n		530		529	
R^2		.73		.76	

Notes: The variables for firm i at year t are defined as follows: MVE is share price three months after year end; BVE*less*GW is the book value of equity less the goodwill balance reported on year end; GW is the goodwill balance as reported on year end; NI is net income after tax for the year less goodwill charges; IFRS3 is an indicator variable that equals 1 if the goodwill balance is reported according to IFRS 3 and 0 otherwise; IFRS3 × GW is an interactive variable; GROWTH is the difference between the current year's reported sales and the sales reported for the previous year. All independent variables that represent levels are deflated by issued shares on year end. All results are shown after performing White's (1980) adjustment for heteroscedasticity; t-statistics are shown in parentheses; p-values are two-tailed.

(coefficient = 2.114, p-value < .01) correlation with MVE. This represents evidence in support of the hypothesis that goodwill reported under IFRS 3 is more value-relevant to capital market participants than goodwill reported under IAS 22. It also provides evidence that the IASB met their objectives when they issued IFRS 3. BVE*less*GW, NI and GW all show positive and statistically significant correlations with MVE, as expected.

8. Conclusion

The objective of this study is to investigate whether the goodwill balance reported under IFRS 3 is more value-relevant to users of financial statements than the goodwill balance reported under IAS 22. This study is therefore an assessment of the new regulation that was introduced with IFRS 3. Prior literature found that goodwill is perceived as an asset by market participants and also that an impairment regime better reflects the underlying economic value of goodwill than an amortisation regime. There is, however, limited evidence on the efficacy of IFRS 3 as a whole and whether the change in the measurement and subsequent treatment of goodwill provides more value-relevant information to users of financial statements. This study reports a positive and significant association between goodwill and market value of shares, and that this association is stronger for IFRS 3 goodwill treatment than that of IAS 22. This result can be interpreted as evidence that participants in South African capital markets perceive goodwill reported under IFRS 3 as more value-relevant than the goodwill balances reported under IAS 22 – and also that the IASB's objective with the introduction of IFRS 3 (of enhancing the relevance and reliability of information provided to users of financial statements) appears to have been met.

It is perhaps worth noting that the reason for the enhanced value-relevance of the goodwill balance under IFRS 3 may be that, unlike IAS 22, it excludes items that had previously been recognised as part of goodwill, namely contingent liabilities and intangible assets, e.g., agreements, contracts, customer lists, research findings, etc. This implies that IFRS 3 goodwill, in theory, relates only to synergies and overpayments by the acquirer.

The following possibilities are suggested for future research in this area. Firstly, the requirement set by IFRS 3 to impair goodwill annually instead of writing amortisation off annually increases management discretion, giving them opportunity to manipulate the financial results. Similar to the test performed in Lee (2011), it would be interesting to investigate whether South African managers use this requirement of IFRS 3 to manipulate financial results in order to achieve a desired outcome. Secondly, in 2009, IFRS 3 was once again amended. The main change was to give more guidance as to the application of the acquisition method that must be applied to business combinations, since inconsistency in the interpretation of this method resulted in data that are not comparable between companies. It will be interesting to investigate the market's perception of this change, since it reduces the interpretation freedom that companies previously enjoyed, resulting in an even more rigid approach. Future research could investigate whether users perceive the information provided to them after the 2009 change as more value-relevant than the information provided to them previously.

The findings of this study should be interpreted after due consideration of some limitations. The most important limitation is that, in common with all value-relevance studies using an Ohlson-type model (Ohlson, 1995), the findings of this study do not provide absolute evidence that investors use the specific goodwill numbers that were included in the regression model. However, it is safe to conclude that capital market participants collectively form their opinions regarding the valuation of shares with all the information at their disposal and that their value judgement results in a stronger positive association

between share price and the new IFRS 3 treatment of goodwill than the previous treatment of goodwill. Another potential limitation is the fact that these results may be driven by a change in economic and/or market conditions that may have coincided with the introduction of IFRS 3. We are not specifically aware of such a change in condition. Therefore, the results were interpreted as evidence in support of the view that IFRS 3 provides information that is more value-relevant than the previous regulation.

Disclosure statement

No potential conflict of interest was reported by the authors.

Note

1. Barth and Clinch (2009) investigate how effective different specifications are at mitigating for scale effects. They find that share-deflated and undeflated specifications generally mitigate the best for a variety of scale effects. They acknowledge that deflating by the number of outstanding shares might seem like an unlikely choice, since there is not necessarily a link between the number of shares outstanding and any economic phenomena, but nevertheless their findings indicate that some features of the number of outstanding shares do create a correlation between them and scale, resulting in more correct inferences when scaling data by the number of outstanding shares.

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