The Value Relevance of Aged Goodwill: A South African Study

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Abstract

The purpose of this study was to determine whether goodwill, which is measured in accordance with International Financial Reporting Standard 3 (IFRS 3), is value relevant at acquisition and as time progresses, for a period of two years after acquisition. Using the Ohlson model, 126 JSE firm-year observations were tested. It was subsequently found that goodwill was not value relevant at acquisition date but did become value relevant as time progressed. The possible reasons for goodwill not being value relevant at acquisition are attributed to the manner in which IFRS 3 requires goodwill to be measured, the allowance of provisional values under IFRS 3, and the complexities associated with complying with IFRS 3. Goodwill being value relevant as time progresses is attributed to the subsequent measurement requirements of IFRS 3, in particular the annual impairment testing requirement as opposed to the previous amortisation requirements. This study was conducted in a South African context where limited studies on goodwill have taken place. The results are deemed to be useful to investors and standard setters as they hold implications for goodwill accounting practice and changes to goodwill accounting standards.

Keywords: goodwill; intangible assets; IFRS 3; Ohlson model; value relevance

Introduction

The types of assets employed in organisations have changed considerably in light of the transformation of the global economy (Gu and Lev 2001). The previous industrial economy, characterised by the production of goods and a seller's market, has now transformed aggressively into what is known as the knowledge economy (Barth and Clinch 1998; Gu and Lev, 2001; Lev and Daum 2004). In light of this transformation, assets employed in an organisation also transitioned from tangible investments, such as plant and machinery, to more intangible ones such as innovation, customer-centricity, high-quality customer services and attraction (Barth and Clinch 1998; Gu and Lev 2001; Lev and Daum 2004). Consequently, many firms now need to spend an increasing amount of resources on intangible investments such as advertising, research and development, brand building, staff training and building customer relationships (Barth and Clinch 1998; Gu and Lev 2001; Lev and Daum 2004).

For these reasons, intangibles play a large role in business survival and are a leading indicator of a firm's corporate growth and value (Lev and Zarowin,1999; Nakamura 2003; Neely, Marr, Roos, Pike and Gupta 2003; Villalonga 2004). Many analysts, scholars, investors and managers also attribute the future growth and income potential of an entity to its investments in intangibles (Lev and Daum 2004; Lev and Zambon 2003; McCarthy and Schneider 1995; Nakamura 2003; Neely et al. 2003). Many studies have also been carried out on the value of intangibles, given its importance in organisations (Chalmers, Clinch and Godfrey 2008; Goodwin, Ahmed and Heaney 2008; Ji and Lu 2014; Oliveira, Rodrigues and Craig 2010; Sahut, Boulerne and Teulon 2011).

A challenge arises here because accounting standards on intangibles have been criticised for being too stringent when reporting on intangible assets in the statement of financial position when preparing individual financial statements (Lev and Zarowin 1999). A negative outcome of this is the fact that limited information is being reported on intangibles, which may adversely affect the ability of investors to assess the growth and value of individual firms which do not form part of a group structure (Barth and Clinch 1998; Lev and Zarowin 1999). This is not the case, however, when assessing group companies in consolidated financial statements (Aboody and Lev 2000; Sahut et al. 2011).

Intangible assets are considered very informative to the users of consolidated financial statements at the date of a business acquisition (Aboody and Lev 2000; Sahut et al. 2011). This may be because intangibles that previously were not allowed to be recognised in the separate financial statements of individual firms, which resulted in limited information being reported on, are now recognised to provide useful information (IASB 2008a). Additionally, a business combination gives rise to goodwill, which is the premium paid for a business and its operations (Ellis 2001; IASB 2008a; Spacek 1964). This makes goodwill—which consists of items such as advertising, research, brand

building, staff training and building customer relationships—a single number that encapsulates the value of the acquired firm. This number would thus be relevant for various investors and acquirers in making investment decisions regarding business combination acquisitions and mergers (Ellis 2001; IASB 2008a; Spacek 1964).

Although the recognition and disclosure of goodwill in financial statements have been valuable for users (Ellis 2001; Ji and Lu 2014; Oliveira et al. 2010; Sahut et al. 2011), further investigation needs to be conducted in the area of goodwill, particularly whether the information content of goodwill (for investors to make economic decisions) changes as time progresses following a business combination. This interest is justifiable given that in 2008, the International Financial Reporting Standard 3 on goodwill (IFRS 3) introduced distinct requirements for initial goodwill measurement, as well as its measurement subsequently, which differs materially from previous reporting standards on goodwill (Eloff and De Villiers 2015; Shahwan 2004; Wines, Dagwell and Windsor 2007). In particular, the subsequent treatment of goodwill, according to IFRS 3, no longer requires that goodwill be systematically amortised over a prescribed period. The standard only prescribes subsequent impairment testing. The subsequent accounting treatments for goodwill are, however, marked with huge complexities, both from a technical and judgmental perspective (Bepari, Rahman and Mollik 2014; Wines et al. 2007). This naturally leads to the estimates being subject to management bias, ambiguity and discretion, which are open to abuse and have led to numerous corporate scandals (Cearns 1999; Hoogendoorn 2006; Massoud and Raiborn 2003; Watts 2003; Wines et al. 2007). Unsurprisingly, the subsequent treatment of goodwill has been identified as one of the five most challenging requirements of the IFRS 3 transition (Hoogendoorn 2006). This forms part of the long-standing debate on an appropriate subsequent measurement of goodwill (Bepari and Mollik 2017; Bugeja and Gallery 2006; Hamberg and Beisland 2014; Oliveira et al. 2010; Seetharaman, Balachandran and Saravanan 2004; Shahwan 2004; Wines et al. 2007).

It was against this backdrop that the study explored the value relevance of purchased goodwill as time progresses, taking into consideration the initial and subsequent measurement of goodwill according to IFRS 3. Value relevance research determines the association between accounting information and some measure of value (Barth 2000). In this context, the accounting information is the different aged components of goodwill, while the measure of value is the market value of equity. Based on the efficient market hypothesis, it is assumed that asset, liability and income amounts are implicitly assessed by investors when valuing a firm (Barth 2000; Engelbrecht, Yasseen and Omarjee 2018; Klimczak 1999). As a result, accounting amounts summarise the information that investors use to set share prices since the market is forward looking (Barth 2000; Bugeja and Gallery 2006; Klimczak 1999; Ravenscroft and Williams 2009).

The objective of this study was to:

- Provide insight to financial statement users, investors and analysts who are interested in the way purchased goodwill affects the market value of firm equity, both at acquisition and as time progresses.
- Provide insight to standard setters in evaluating the current IFRS requirements, in terms of the way goodwill is measured at acquisition and subsequently.

In order to meet the objective of this study, the following research question was used in the study:

Is goodwill value relevant in the year it is acquired and in the two years subsequently?

This study was a replication of a study by Bepari and Mollik (2017) as well as Bugeja and Gallery (2006), in order to draw comparisons and conclusions on the value relevance of goodwill as time progresses, based on changing reporting frameworks. The study by Bepari and Mollik (2017) was conducted post-IFRS adoption, while the study by Bugeja and Gallery (2006) was carried out pre-IFRS. This research article is significant in order to compare the results of the two previous studies mentioned above and to draw conclusions on value relevance of goodwill in a global context as time progresses.

The South African setting is relevant, as there have been no previous studies conducted in this setting on the value relevance of goodwill as time progresses. South Africa also has many different institutional factors from other countries where research on goodwill has been performed. Among these institutional factors is the fact that South Africa is regarded as a pioneer in the IFRS adoption process (https://www.grantthornton.co.za/) because the majority of other countries' GAAP (Generally Accepted Accounting Practices) are uniquely different from IFRS. The country also held the number one ranking for quality of auditing and reporting standards during the period of study. Since goodwill identification, valuation, recognition and measurement are extremely complex and are largely dependent on estimates and judgements (Wines et al. 2007), the results of this study are useful, given the high quality of reported goodwill in South African annual financial statements.

Another factor is that the Johannesburg Stock Exchange (JSE) is the largest on the African continent and ranks 19th in the world. It attracts a vast amount of foreign investment due to its size as well as it being a strong emerging market economy, which is largely driven by commodities. For these reasons, market reaction and share price movements would be different to other settings where research on goodwill has been carried out since investor perceptions and the composition of the types of companies listed would be different to other countries.

This paper consists of five sections, broadly organised as follows:

Section one forms the introduction to this paper and discusses the context, purpose and significance of the study. Section two reviews prior literature on the research topic. This section thus discusses the evolution of goodwill accounting and the IFRS requirements relating to goodwill. Section three elaborates on the methodology of the study, including the sample, research model, data and method. Section four presents and analyses the results obtained. Lastly, section five provides concluding remarks and suggests areas for future studies.

Literature Review

Accounting goodwill is commonly defined as the excess of the price paid for a firm over the net of the amounts assigned to assets acquired and liabilities assumed in a business combination (Ellis 2001; IASB 2008a). Contrary to the accounting definition, the economic reality of goodwill is directly related to the current and future performance of the acquired firm and, since investors are forward-looking, goodwill must be directly related to the expectations of the future operating performance of the company (Ellis 2001; Spacek 1964).

Historically, the goodwill literature focused on determining whether goodwill should be recognised as an asset or not (Chauvin and Hirschey 1994; Dahmash, Durand and Watson 2009; Giuliani and Brännström 2011; Jennings, Robinson, Thompson and Duvall 1996; McCarthy and Schneider 1995). Such studies were conducted in response to accounting theorists having different and contrasting views on the definition of goodwill (Colley and Volkan 1988; Giuliani and Brännström 2011; Johnson and Petrone 1998). While some accounting theorists defined goodwill as a residual of a larger asset, which is the investment after being broken down into its identifiable constituent components (Colley and Volkan 1988; Johnson and Petrone 1998), other accounting theorists considered goodwill to be its underlying components. These components include items such as a purchase premium for items not recognised in the statement of financial position (Giuliani and Brännström 2011; Henning, Lewis and Shaw 2000; Higson 1998).

Accordingly, if goodwill is a part of a larger asset (the investment), it should be recognised as an asset in line with current conceptual frameworks because the investment is an asset (Giuliani and Brännström 2011). Additionally, since investors believe that goodwill reflects future economic benefits, goodwill should be recognised as an asset (Dahmash et al. 2009; Godfrey and Koh 2001; Jennings et al. 1996; Shahwan 2004). However, if goodwill is made up of particular components, which may not all meet the asset definition of the respective accounting frameworks, it may or may not be capitalised, depending on whether these components meet the asset definition (Giuliani and Brännström 2011).

Subsequently, most accounting frameworks agreed that goodwill should be recognised as an asset (Dahmash et al. 2009; Godfrey and Koh, 2001; Jennings et al. 1996) and that

its value does deplete as time progresses (Seetharaman et al. 2004). As a result, goodwill was generally amortised over a prescribed period of time or was limited to a specific period (Seetharaman et al. 2004). This led to many studies focusing on the value relevance of goodwill amortisation (European Financial Advisory Group 2014; Hall 1993; Ravlic 2003; Waxman 2001; Wines et al. 2007). However, a problem was identified in this regard, as the consumption pattern of goodwill was extremely difficult to determine. This meant that amortised goodwill did not adequately capture the value of the underlying asset (European Financial Advisory Group 2014; Ravlic 2003; Waxman 2001; Wines et al. 2007).

In the early 2000s, reporting standards shifted from the traditional amortisation requirements to introduce the concept of periodic impairment testing (IASB 2008b; Zeff and Dharan, 1994). In 2007, the convergence to IFRS 3 as an international accounting standard brought about an influx of studies on its adoption (Ball 2006; Barth, Landsman and Lang 2008; Horton, Serafeim and Serafeim 2013; Sahut et al. 2011; Schipper 2005). In particular, numerous studies were conducted in the area of intangible assets and specifically on goodwill. These studies focused on the value relevance of identifiable intangibles and goodwill pre-IFRS and post-IFRS adoption (Chalmers et al. 2008; Goodwin et al. 2008; Ji and Lu 2014; Oliveira et al. 2010; Sahut et al. 2011). Such studies were justifiable, given that the requirements of IFRS 3 regarding intangibles differed from previous reporting standards (Eloff and De Villiers 2015; Wines et al. 2007). Most of these studies subsequently found goodwill to be more relevant post-IFRS adoption (Chalmers et al. 2008; Goodwin et al. 2008; Oliveira et al. 2010).

Among the most distinct requirements of IFRS 3, in terms of goodwill, is that all identifiable assets and liabilities of the acquired firm must be recognised at acquisition by determining the goodwill value (IASB 2008a). This means that identifiable intangible assets in the acquired firm's book, which were not allowed to be recognised as intangibles according to the stringent IAS 38 requirements, could now be recognised (IASB 2008a). These include items such as a brand name, a patent or a customer relationship and reacquired rights (IASB 2008a). IFRS 3 also allows that within the measurement period, which is a 12-month period post-acquisition date, goodwill can be adjusted to reflect new information relating to facts and circumstances that did exist at the acquisition date and that would have had an effect on the value of goodwill recognised in the financial statements. Included in these measurement period adjustments are fair value changes to assets and liabilities and fair value changes to contingent considerations (IASB 2008a).

Additionally, the requirement to impair the goodwill balance annually, instead of amortising the balance over a stipulated useful life, is another distinct requirement of IFRS 3 (IASB 2008a). This requirement has triggered a substantial number of studies focusing on impairment loss of value relevance (Ahmed and Guler 2007; Duangploy, Shelton and Omer 2005; Hamberg and Beisland 2014; Hayn and Hughes 2006; Magni, Malagoli, Bini and Della Bella 2007). These studies were specifically intended to assess

whether this subsequent measurement approach is a better reflection of the consumption of goodwill.

Bepari and Mollik (2017) conducted a similar study to Bugeja and Gallery (2006), where the value relevance of goodwill as time progresses was tested. These studies were conducted in Australia post-IFRS and pre-IFRS respectively, using the Ohlson model. Bepari and Mollik (2017) compared their results with those of Bugeja and Gallery (2006) in order to draw conclusions on the value relevance of aged goodwill pre-IFRS and post-IFRS adoption. Bepari and Mollik (2017) showed that goodwill was not relevant in the year of acquisition, but that it was relevant in the year after acquisition, in the second year after acquisition, and goodwill older than two years after the acquisition. The fact that goodwill is not relevant in the current period is attributed to the allowance made for a provisional goodwill measurement in accordance with IFRS 3. Further, the study done by Bepari and Mollik (2017) attributes the value relevance of goodwill in the years after the year of acquisition to the impairment approach of measuring goodwill as opposed to the previous amortisation approach, where goodwill lost relevance as time progressed (Bugeja and Gallery 2006). The current research article is a replication of the above two studies in order to compare the results and draw conclusions on value relevance of goodwill in a global context as time progresses.

Research Methodology

This study was carried out using a positivist quantitative methodology. This is in line with pioneering research between accounting numbers and share price movements (Ball and Brown 1968; Watts and Zimmerman 1986). Regression analysis was used to investigate the relationship between the accounting information (goodwill and its components) and the market value of equity. Once the data for the sample had been collected, an adaptation of the Ohlson model was used as a basis for conducting the regression analysis. This study is based on the efficient market hypothesis which assumes that asset, liability and income amounts are implicitly assessed by investors when valuing the firm and, as a result, accounting amounts summarise information that investors use to set share prices (Barth 2000; Klimczak 1999). Based on this, variables of the research model that are statistically significant to the market value of equity are assumed to be value relevant to users. The statistical significance of the different ages of goodwill (tested as variables in the research model) was then compared to answer the research question. This study used the same methodological approach as those of Bugeja and Gallery (2006) and Bepari and Mollik (2017) by using the Ohlson model to test the value relevance of goodwill and its aged components. This methodological approach has also been used before in South Africa by Eloff and De Villiers (2015), Swartz and Negash (2006), as well as De Klerk and De Villiers (2012). The model is also validated for use in a South African setting by (Swartz and Negash 2006).

Sample and Data Collection

The sample consisted of the top 100 companies, measured by market capitalisation, listed on the Johannesburg Stock Exchange (JSE) that had had at least one goodwill acquisition between 2010 and 2013. Furthermore, companies that were dual listed with functional currencies other than the rand (ZAR) were omitted to exclude foreign currency movements, in line with Bepari and Mollik (2017). A total of 126 firm-year observations of goodwill from a total of 26 different companies, covering diversified sectors, were obtained.

To adequately age the goodwill for each observation made between 2010 and 2013, data were collected for the observation year (*t0*), a period of two years prior to the observation year (*t-1 and t-2*), as well as two years post the observation year (*t+1 and t+2*). The listing of the JSE top 100 companies between 2008 and 2015 was, therefore, also needed and obtained directly from the JSE

The lagged share price of each firm, the outstanding number of shares at year-end, the book value of equity, the book value of net income, the book value of total intangible assets, the total net goodwill and the identifiable intangible assets were obtained from the iNET BFA database. The goodwill acquisition values were handpicked directly from the annual financial statements and aged accordingly. The data in this study are unbalanced panel data which have the advantage of controlling for individual heterogeneity.

Research Model

The Ohlson model, which has been used extensively in the value relevance literature (Armstrong, Barth, Jagolinzer and Riedl 2010), suggests that the market value of a firm's securities is a function of the book value of the firm's equity and earnings, which are operationalised in model (1) below.

Model (1)
$MVE_{i,t} = \alpha_0 + \alpha_1 BVE_{i,t} + \alpha_2\ NI_{i,t} + E_{i,t}$
MVE = *the market capitalisation of firm* i *3 months after reporting date* t,
BVE = *the book value of firm* i *net assets at reporting date* t
NI = *net income of firm* i *for year* t, *after interest, tax, discontinued operations, preference share dividends and non-controlling interests, which is attributed to ordinary shareholders*
$E_{i,t}$ = *Book to market residual.*

Figure 1: The Ohlson model adapted (Bepari and Mollik 2017)

In this model, the market value of equity is a summary measure of information relevant to users, while the book value of equity and net income are summary measures of accounting information reflected in financial statements (Barth and Clinch 1996). Earnings is a proxy for variables that have been omitted in the balance sheet as a result

of them not being recognised by accounting frameworks (Barth 2000; Barth and Landsman 1995). This model is consistent with the methodology followed by Francis and Schipper (1999), Al Jifri and Citron (2009), Bugeja and Gallery (2006), Sami, Wang, and Zhou (2011), Sami and Zhou (2004) and Oliveira et al. (2010).

Total intangible assets including goodwill and total net goodwill were firstly separated from (BVE) to determine whether total intangible assets are value relevant in model (2).

Model (2)
$MVE_{i,t} = \alpha_0 + \alpha_1 BVExIA_{i,t} + \alpha_2 NI_{i,t} + \alpha_3 TIA_{i,t} + \varepsilon_{i,t}.$
BVExIA = the book value of equity less the amount of recognised intangible assets (including goodwill) per share of company i at the end of year t; and **TIA** = *total intangible assets including goodwill at reporting date t for firm i.*

Figure 2: The Ohlson model adapted to test the value relevance of total intangible assets (Bepari and Mollik 2017)

Model (3)
$MVE_{i,t} = \alpha_0 + \alpha_1 BVExIA_{i,t} + \alpha_2 NI_{i,t} + \alpha_3 IIA_{i,t} + \alpha_4 GWT_{i,t} + \varepsilon_{i,t}.$
GWT = total net goodwill which is the cost of goodwill less accumulated impairment charges together with foreign exchange movements. **IIA**= *identifiable intangible assets*

Figure 3: The Ohlson model adapted to test the value relevance of total net goodwill and identifiable intangible assets (Bepari and Mollik 2017)

To further test the value relevance of the different age categories of purchased goodwill, based on the assumption that each age category has different value relevance attached to it, goodwill purchased in the current financial period (*t0),* goodwill purchased in the previous financial period (*t-1*), and goodwill purchased two years prior to the current financial period (*t-2*) were partitioned in models (4), (5) and (6) respectively.

Model (4)
$MVE_{i,t} = \alpha0 + \alpha1 BVExIA_{i,t} + \alpha2\ NI_{i,t} + \alpha3 IIA_{i,t} + \alpha4 GWA0_{i,t} + \alpha5 GWTxA0_{i,t} + \varepsilon_{i,t}$
GWA = Goodwill purchased in the current year (t0), which is the gross amount of goodwill additions made in the current period. **GWTxA** = Goodwill residual 1 which is the total net goodwill value in the current reporting period less any additions of goodwill made in this period.

Figure 4: The Ohlson model adapted to test the value relevance of goodwill purchased in the current year (Bepari and Mollik 2017)

Model (5)
MVEi,t = α0 + α1BVExIAi,t + α2 NIi,t + α3IIAi,t + α4GWA0i,t + α5GWA−1i,t+ α6GW TxA0 −1i, t + εi,t
GWA−1 = Goodwill purchased in the previous year (t-1) which is the gross amount of goodwill additions made in the previous reporting period. These are goodwill additions that are a **year old.** **GWTxA0 −1** = Goodwill residual 2 which is the total net goodwill value in the current reporting period less any additions of goodwill made in the current and the previous reporting period.

Figure 5: The Ohlson model adapted to test the value relevance of goodwill purchased in the previous year (Bepari and Mollik 2017)

Model (6)
MVEi,t = α0 + α1BVExIAi,t + α2NIi,t + α3IIAi,t + α4GWA0i,t + α5GWA−1i,t + α6GW A−2i,t + α7GWTxA0−2i,t + εi,t.
GWA−2i = Goodwill purchased two years prior to the current year (t-2) which is the gross amount of goodwill additions made 2 years previous to the current reporting period. These are goodwill additions which are 2 years old. **GWTxA0−2** = Goodwill residual 3 which is the total net goodwill value in the current reporting period less any additions of goodwill made in the current period, the previous period and 2 years prior to the current reporting period.

Figure 6: The Ohlson model adapted to test the value relevance of goodwill purchased two years prior to the current year (Bepari and Mollik 2017)

Testing Approach and Data Analysis

Models (1) to (6) were computed for each year of goodwill observation and for two years thereafter, so as to adequately age the goodwill. Therefore, for each goodwill observation made, data were collected for the observation year (*t0*), a period of two years prior to the observation year (*t-1 and t-2*), as well as two years post the observation year (*t+1 and t+2*). The independent variables are the variables defined above for each model (1), (2), (3), (4), (5) and (6), while the dependent variable is the share price of the company lagged for three months. The lagging of the share price allowed for sufficient time to deflate any market reactions to earnings announcements. Another reason for lagging share price for this period is to allow for accounting information to become publically available (Barth, Li and McClure 2018). In order to mitigate size-related heteroscedasticity, all variables (including the intercept) were scaled to a per-share value, in line with other studies.

When the Kolmogorov-Smirnov and the Shapiro-Wilk tests of normality were performed, it was found that the data in all variables deviated significantly from normality. Skewness and kurtosis levels were also found to be beyond the limits of normal tolerance, which justified winsorising the data to normalise the distributions. This assisted in removing the outlying data that could have had an undue effect on the distribution of a variable. The variables were winsorised at 90 per cent (less than the 5th percentile and above the 95th percentile).

A graph of the market value of equity versus time for each company suggested that a multilevel model would be more appropriate than a single regression model, as the distributions were completely random. After statistical tests had been performed, the final model used was a random intercept and fixed slopes model, as this was considered most appropriate as per the data distributions.

Limitations of the Study

This study was conducted on a specific sample of companies. Therefore, care should be taken in generalising these particular results to other companies in South Africa and other exchanges globally. Another limitation is the effect of price movements unrelated to goodwill, such as political events, interest rates, oil influence, the strength of the rand and foreign investment. Some of these factors could have been controlled for time if a fixed effects model was used when performing statistical testing. In line with this, since the share price has been lagged for a three-month period, share movements in this time frame could have influenced the study.

Despite these limitations, it is reasonable to assume that capital market participants collectively form their opinions regarding the valuation of shares with all the information at their disposal (Eloff and De Villiers 2015). Since the companies in the sample consisted only of publicly listed entities, a substantial amount of this information would be obtained from financial statements. Furthermore, since business combinations are an important means of value creation to investors, users are interested in these disclosures (Ellis 2001).

Results

Descriptive statistics

Table 1 below presents the descriptive statistics for all the variables.

Table 1: Descriptive Statistics of Winsorised Deflated Variables

	Mean	Median	Standard Deviation	Minimum	Maximum
MVE – Share price 3 months after year-end	116.874	109.270	70.701	20.249	294.294
BE – net value of assets	49.801	34.607	43.541	5.038	156.333
NI – net income	8.314	6.305	6.903	.920	27.635
Eit – book to market residual	59.616	44.171	50.844	-4.443	185.466
TIA – total intangible assets including goodwill	7.963	4.102	8.838	.319	35.421
BVExIA – book value of equity less total intangible assets	40.220	26.560	40.104	-3.537	137.326
GWT – net goodwill	4.405	2.269	4.518	.127	14.509
IIA – identifiable intangible assets	3.465	1.537	4.991	.039	20.492
GWA – goodwill purchased in current/observation year (t0)	1.076	.164	2.039	.003	8.344
GWTxA – goodwill residual 1 – model (4)	3.550	1.812	3.919	.057	11.814
GWA1eq – goodwill purchased in the previous year (t-1)	.808	.158	1.395	.002	5.475
GWT0min1eq – goodwill residual 2 – model (5)	2.910	1.240	3.629	.006	11.456
GWAmin2ieq – goodwill purchased 2 years prior to current/observation year (t-2)	.583	.145	.979	.002	3.588
GWTxA0min2eq – goodwill residual 3 – model (6)	2.389	1.137	3.259	-.310	10.668

Regression Results

The multivariate regression results, using a random intercept and fixed slopes effect model, are reported in table 2 below.

Table 2: Regressions of Market Value of Equity on Book Value of Equity, Net Income and Components of Goodwill

Variables#	Model 1 Coefficient t-statistic	Model 2 Coefficient t-statistic	Model 3 Coefficient t-statistic	Model 4 Coefficient t-statistic	Model 5 Coefficient t-statistic	Model 6 Coefficient t-statistic
Intercept	43.92 3.505^{**}	34.77 3.824^{**}	40.65 3.363^{**}	35.88 3.049^{**}	38.44 2.602^{*}	47.85 3.371^{**}
BE	1.28 6.736^{**}					
NI	0.96 1.148	1.77 2.147^{*}	1.70 1.862	3.26 2.942^{**}	3.02 2.239^{*}	3.97 2.183^{*}
BVExIA		0.80 4.261^{**}	0.81 4.102^{**}	0.54 2.431^{*}	0.66 2.495^{*}	0.3 1.169
TIA		3.35 5.472^{**}				
IIA			3.22 2.086^{*}	2.92 1.974	3.43 1.859	3.97 2.296^{*}
GWT			4.31 3.063^{**}			
GWA				-0.60 -0.256	-2.48 -0.961	-3.89 -1.544
GWTxA				6.40 4.118^{**}		
GWA$_{-1}$					2.44 0.630	1.73 1.475
GWTxA$_{0-1}$					6.51 3.148^{**}	
GWA$_{-2}$						13.73 2.087^{*}
GWTxA$_{0-2}$						3.75 1.677
N	126	126	126	126	126	126
Adjusted R^2	0.447	0.528	0.541	0.587	0.538	0.558

Note: Table 1 for variable definitions*
p-value significant < 0.05 (two-tailed), **
p-value significant < 0.01 (two-tailed), #All variables are deflated by the number of shares at year-end.

The results show that both identifiable intangible assets and total net goodwill are significant (t = 2.086 and t = 3.063 respectively); however, identifiable intangible assets are significant at a five per cent level, while net goodwill is highly significant at a one per cent level. In model (4) total net goodwill is separated into goodwill that is purchased in the current reporting period (GWA) and the remaining goodwill balance (GWTxA). The results show that goodwill purchased in the current reporting period (GWA) is

negative and not significant. Model (5) separated total net goodwill into goodwill acquired in the current reporting period (GWA); goodwill acquired in the previous reporting period which is one year old (GWA−1); and the second goodwill residual (GWTxA0 −1). Model (6) separated total net goodwill into goodwill acquired in the current reporting period (GWA); goodwill acquired in the previous reporting period which is one year old (GWA−1); goodwill purchased two years prior to the current reporting period, that is, goodwill that is two years old (GWA−2i); and a third residual (GWTxA0−2). For goodwill that is a year old (t-1), the relationship to the market value of equity is positive but not significant. Goodwill that is two years old (t-2) is positive and significant (t = 2.087) at a five per cent level in model (6). Furthermore, the first goodwill residual (GWTxA) and second residual (GWTxA0 −1) are positive and highly significant (t = 4.118, t = 3.148; p < 0.01 respectively), while the third goodwill residual (GWTxA0−2) is positive, but not significant.

Analysis and Discussion

Descriptive statistics

For identifiable intangibles (IIA) and total net goodwill (GWT), the median results were 1.537 and 2.269 respectively. These results show that total net goodwill represents a large portion of total intangible assets (TIA), which amounts to 4.102. On closer inspection, it was observed that even though total net goodwill (GWT) represents a greater portion of total intangible assets (TIA), all firms in the sample did have some sort of identifiable intangible assets (IIA).

Regression Analysis

The results of this study show that goodwill is neither value relevant in the year of acquisition, nor one year after acquisition. Goodwill is, however, value relevant two years after acquisition. It can thus be said that goodwill is value relevant as time progresses.

Value Relevance at Acquisition

When analysing the results of the value relevance of goodwill at acquisition, these results are contrary to those in a study conducted prior to the implementation of IFRS, under Australian GAAP, by Bugeja and Gallery (2006), but similar to those of the study conducted under IFRS by Bepari and Mollik (2017). Goodwill at acquisition measured under IFRS can be seen not to be value relevant at acquisition for a number of reasons discussed below.

Among a distinct requirement brought by IFRS 3 is the requirement to recognise all identifiable assets and liabilities at the acquisition date, even if these assets and liabilities were not recognised in the separate financial statements of the acquired firm (IASB 2008a). This requirement allows items such as internally generated intangibles such as brand names, patents, a customer relationship and reacquired rights to be recognised

when they were previously not recognised in the separate financial statements (IASB 2008a). In line with this, a possible reason for goodwill acquisitions not being relevant under IFRS 3, is that the goodwill at acquisition date only represents uncertain elements of which the market cannot assess the value implicit within it because it does not provide insight into the economics of the acquisition immediately (Ellis 2001). Ellis (2001) also views the synergies component (or the future growth component), largely represented by goodwill under IFRS 3, to be the most uncertain value when business combinations take place.

Another distinct requirement of IFRS 3 when a business combination takes place is the allowance of goodwill to be recognised as a provisional value. The provisional goodwill value may later be adjusted in the measurement period to reflect new information which existed at the acquisition date and would have had an effect on the value of goodwill at acquisition. These adjustments include fair value changes to assets and liabilities and fair value changes to contingent considerations (IASB, 2008a). This requirement could be another possible reason why the market does not value goodwill purchased in the current reporting period as the market may perceive goodwill to be uncertain and incomplete at acquisition date (Bepari and Mollik 2017).

Furthermore, since the at-acquisition accounting requirements of IFRS 3 state that goodwill is the difference between the purchase price and the fair value of assets recognised and liabilities assumed (IASB 2008a), the extensive use of fair value accounting has come under scrutiny. This is because obtaining fair values is often a complex task, which is reliant on management estimates and is susceptible to manipulation and bias. Management misrepresentations and manipulation often occur when acquisitions take place (Wines et al. 2007), resulting in failed acquisitions (Hietala, Kaplan and Robinson 2002). Thus, due to the complexities, errors or manipulation of goodwill measurement, goodwill at acquisition may not correctly reflect the future economic benefits in line with investors' perceptions of the acquisition, rendering it irrelevant (Wines et al. 2007).

Value Relevance in the Years following Acquisition

It would appear that the relevance of goodwill value does not decline in the two years after the relevant acquisition date; instead, it increases in value relevance during this period. These results are similar to the post-IFRS results of the study by Bepari and Mollik (2017), which also suggested an increasing trend regarding the value relevance of goodwill as time progressed. The results are, however, contradictory to those of Bugeja and Gallery (2006), who—under Australian GAAP—found a decreasing trend of value relevance in goodwill as time progressed. The results of the current study, together with the results of the study conducted by Bepari and Mollik (2017), support the subsequent measurement of IFRS 3, specifically relating to the impairment requirement of IFRS 3 (Bepari and Mollik 2017) as opposed to the subsequent

measurement requirements of Australian GAAP, which amortised goodwill systematically not exceeding 20 years.

These results of this study imply that goodwill impairments are a better indication of subsequent goodwill value and are more relevant despite the complexities and challenges of implementation noted in the literature. One of the observations from this research was that only a handful of impairment observations were made and they have taken place far less frequently. According to the European Financial Advisory Group (2014), many studies have found the value of goodwill to diminish only between the 3- and 10-year period, which could suggest that goodwill under the amortisation method was written off too quickly and did not capture the future economic benefits of goodwill adequately, making goodwill irrelevant after a period of two years.

The amortisation method of subsequent measurement has thus been repeatedly criticised and has been abolished by most reporting frameworks. According to researchers, goodwill amortisation is arbitrary and does not truly reflect the value implicit in goodwill, as it is impossible to estimate a useful life based on the irregular pattern in which its benefits are consumed from firm to firm (Clinch 1995; European Financial Advisory Group 2014; Ravlic 2003; Waxman 2001). Some analysts have even rendered goodwill amortisation to be futile, whereby they have ignored this value in their firm analyses altogether (Waxman 2001).

Conclusion

The objective of this research report was to investigate whether goodwill acquisitions, in terms of IFRS 3, are value relevant in the year of acquisition and as time progresses, two years post-acquisition date. The total net goodwill of a firm was disaggregated into three time periods. The relationship between the market values of equity of the sample firms and the goodwill purchased in each time period were then established and compared in order to answer the research question. This study was conducted using the Ohlson model (Feltham and Ohlson 1995; Ohlson 1995) and its later refinements.

The test results for a sample of 126 firm-year observations of JSE-listed companies in South Africa showed that goodwill is not value relevant in the year of acquisition, however, as time progresses, goodwill then becomes value relevant in the second year after acquisition. The results suggest that the initial measurement of goodwill does not correctly measure the market perception of the acquired firm's goodwill. This could be due to the following requirements of IFRS 3:

- Goodwill at acquisition date only representing uncertain elements of which the market cannot assess the value implicit within it.
- The provisional accounting treatment of goodwill making goodwill uncertain or incomplete.

- The extensive use of fair value accounting which allows for errors and manipulation when calculating goodwill.

Further, since goodwill does become value relevant as time progresses, this suggests that subsequent measurement requirements of IFRS 3 are value relevant as opposed to previous reporting frameworks. In particular, the annual impairment testing requirement is a better indication of the goodwill value as opposed to the arbitrary subsequent amortisation requirements.

The implication of this study is that concerns are raised on the validity of recognising goodwill as an asset in the statement of financial position in the acquisition year since it is not seen to be value relevant under IFRS 3. In particular, the initial goodwill measurement requirements need to be considered in terms of their complexity, the use of provisional values and the information content they hold. A possible area for future study is the effects of goodwill impairments on market prices. This would test the relevance of the impairment requirement under IFRS 3. Studies of this nature have been performed by Ahmed and Guler (2007) and Duangploy et al. (2005) in Australia and the UK respectively; however, no similar studies have been conducted in the South African context.

Acknowledgements

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