

Amortisation Versus Impairment of Goodwill and Accounting Quality

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Abstract

In this paper there has been made a comparison between the amortisation and the impairment methods for accounting for goodwill, with regards to their associated effects on accounting quality. Based on two qualitative characteristics of accounting information, as formulated by the International Accounting Standards Board (IASB), the effects of the new impairment method are examined using a value relevance and a timeliness model. The sample consists of European companies that adopted this new method of goodwill accounting, following the required adoption of the International Financial Reporting Standards (IFRS) in 2005. The results indicate that impairment of goodwill is actually less value relevant than amortisation, but that it does lead to more timely accounting information. It is concluded that the objective of the IASB in issuing a new accounting standard is not completely met and it only partially contributes to higher accounting quality.

Keywords: Amortisation, impairment, goodwill, value relevance, timeliness

JEL classification: M21, M41, M48

1. Introduction

The International Accounting Standards Board (IASB) issues new accounting standards with the objective to improve the quality of financial reporting. One example is IFRS 3 (IASB, 2005; 2008), which came in effect in 2005. This accounting standard radically changed the way companies account for goodwill. Following IFRS 3, amortisation of goodwill is no longer allowed. The useful life of goodwill and the pattern it diminishes

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are often not possible to predict (IASB, 2005). For this reason companies now have to annually test the value of goodwill carried in their balance sheets for possible impairment.

“After initial recognition, the acquirer shall measure goodwill acquired in a business combination at cost less any accumulated impairment losses” (IASB, 2005, par. 54).

The IASB amended IFRS 3 in 2008. The revision was part of a project performed together with the Financial Accounting Standards Board (FASB), which issued SFAS 141 *Business Combinations* around the same time. Although many differences still exist, the standards became more harmonized. The revised IFRS 3 came in effect as of July 1, 2009 and it does not explicitly refer to goodwill anymore, but states that all assets and liabilities acquired in a business combination are subsequently accounted for in accordance with other standards on the item (IASB, 2008, par. 54).

In the case of goodwill, IAS 36 *Impairment of Assets* and IAS 38 *Intangible Assets* outline the regulation about recognition and subsequent measurement. Related topics refer to: intangible assets with a finite and/or indefinite useful lifetime (IASB, 2004b, par. 89); annual impairment testing and measuring of the recoverable goodwill amounts (IASB, 2004a); fair value less costs to sell and the ‘value in use’; the recoverable amount of the cash-generating unit (CGU) to which the asset belongs to (IASB, 2004a, par. 66) if fair value cannot be determined; and disclosure requirements regarding the impairment test.

The motivation of the IASB to prohibit the method of amortisation of goodwill is that it leads to arbitrary accounting (IASB, 2005). However, the method of impairment of goodwill also gives management a lot of discretion on assumptions and estimates. It is therefore interesting to investigate whether this change in accounting method has led to better quality of accounting information.

In this context, the objective in this paper is to empirically examine whether the change in accounting for goodwill has led to higher accounting quality indeed. This is performed in accordance to the quality characteristics of accounting information (i.e. value-relevance and timeliness) as these were formulated by the IASB in its framework for financial reporting. Consequently, a value-relevance and timeliness model as well as a sample selection of firms included in Worldscope Datastream, which report under IFRS 3 since 2005, are used. A comparison is made between the periods 2001-2004 in which goodwill was amortised, and 2005-2010 in which goodwill was potentially impaired. The years from 2007 to 2010 will be mentioned separately and examined whether the credit crunch had any effect on the model. For the timeliness model a sample from 2001-2004 and 2005-2009 is used respectively. There will also be an examination of all the years separately to see if there is an incremental change in value relevance and timeliness when both companies and investors have become more familiar with the goodwill impairment method. The selection for the testing period is grounded on the most recent data available at the time this work was undertaken. Ideally, it would be preferable the two samples to be of equal length but there proved to be very few values for the amount of goodwill amortisation before 2001 and for quarterly data for 2011.

The results show that the amortization expense on goodwill is more value relevant than the impairment expense. This indicates that investors perceive the amortization

expense as more relevant information for investment decisions and stock price valuation. However, the impairment method of goodwill accounting does lead to timelier accounting information. As a result, the findings only partially support the goals of the IASB in introducing new accounting standards.

The remainder of this paper is organized as follows. The next section discusses the academic literature on the quality characteristics of accounting for goodwill, amortisation and impairment testing. The research methods used to test our hypotheses are introduced afterwards. Section 4 presents the results of the modelling and, section 5 provides a summary and the conclusions.

2. Literature review

2.1 Accounting Information Quality

In 1989, the International Accounting Standards Board (IASB) issued the 'Framework for the Preparation and Presentation of Financial Statements', which was adopted in 2001 (IASB, 1989). This framework was intended to serve as a guide for the preparation of accounting standards as the objective of financial statements is "*to provide financial information that is useful for decision making*" (ibid.: par 12 – 14). Whether the information provided is indeed useful to investors depends on its quality characteristics that are also presented by IASB (1989).

In an Exposure Draft of the harmonisation work IASB and FASB have been undertaking, two fundamental characteristics of financial information are highlighted; namely, relevance and faithful representation (IASB/FASB, 2008). The quality of accounting information can be measured in many other ways of course. For example, Pomeroy and Thornton (2008) list more than twenty measures of financial reporting quality in their study on audit committee effectiveness with each measure relating to other quality characteristics of accounting information (e.g. reliability, comparability, etc.). However, the main focus in this paper is on the attributes of value relevance and timeliness.

Relevance of accounting information is defined as "*the capability of making a difference in the decisions made by users*" (IASB/FASB, 2008, p. 17). This is often measured by taking into consideration the relation between market information (share price) and accounting information (financial statements). Value relevance specifically measures the extent to which accounting information is incorporated in stock prices.

Timeliness is defined as "*having information available to decision makers before it loses its capacity to influence decisions*" (ibid.: 21). In academic research (see for example Palepu et al., 2007; Lev and Zarowin, 1999), this is described as the timely reflection of relevant economic events in the financial statements. Under the efficient market hypothesis, all relevant information is already incorporated in the share price of the company. After linking market information (share price) with accounting information (financial statements) conclusions can be made about timeliness. The sooner an economic event is recognized in the financial statements, the timelier the accounting information is.

In this context of value relevance the paper examines the two methods of accounting for goodwill (e.g. amortisation and impairment) in an attempt to conclude on which method provides more useful accounting information. Goodwill is deemed of particular interest, because of the relatively recent changes in accounting regulation.

2.2 Accounting for Goodwill

Goodwill is defined as “*an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognised.*” (IASB, 2005, app. A). It is measured as the excess of the cost of the business combination over the fair value of the net identifiable assets acquired. There have been long discussions (Johnson and Petrone, 1998; Schuetze, 1993; Bugeja and Gallery, 2006) about the recognition of goodwill and its subsequent accounting treatment where it is debated whether goodwill can even be seen as an asset.

Some researchers argue that goodwill should be expensed immediately at acquisition (see for example Brunovs and Kirsch, 1991; Nobes, 1992; Hughes, 1982). This suggested treatment is motivated by the argument that goodwill is hard to measure because of possible omitted identifiable assets. Proponents of this treatment argue that the future economic benefits, if there are any, cannot be reliably measured. It would therefore not meet the definition of an asset and it should be expensed instead.

Following the definition on goodwill, the IASB argues that it satisfies the general definition of an asset. Academic literature supports this view. Johnson and Petrone (1998) for example argue that goodwill in general meets the definition of an asset, although it also explicitly has to be measurable, reliable and relevant before it can be recognised. Further to this, there is academic evidence showing positive relations between recognized goodwill and equity values (Chen et al., 2004; Churyk and Chewing, 2003; Jennings et al., 1996) indicating that investors perceive goodwill as an economic resource that creates future economic benefits.

However, there is no consensus on the measurement of goodwill. Some researchers even argue that the amount of goodwill that was initially recognized should not be impaired at all. They motivate this by the possibility that the future economic benefits of the goodwill may hold over time, because of excellent financial performance for example. In this context Bugeja and Gallery (2006) perform a study on the relevance of goodwill over time. Their results show that investors only perceive goodwill relevant if it is acquired in the last two years. Keeping goodwill on the balance sheet for a longer period is therefore not giving investors relevant information. This result highlights the importance of a proper accounting treatment for goodwill that deals with this declining relevance.

Recognized goodwill should be expensed over time because it loses its value (Bugeja and Gallery, 2006). For a long period, the amortisation method was commonly used and allowed by most accounting standard-setting boards. Amortisation comprises a fixed expense charge every reporting period over the estimated useful lifetime of the goodwill, with a maximum set at forty years by most accounting standard boards. This method

has some serious disadvantages because it does not account for the 'real' decrease in the underlying economic value of the goodwill, but instead it is based on the assumption that it decreases in a straight line over time. Also, as Bugeja and Gallery (2006) show, goodwill might not meet the definition of an asset after two years implying that the amortisation period of forty years is too long. For this reason the accounting standard boards introduced the new impairment method.

2.3 Goodwill Amortisation

The academic literature is mostly dominated by research on the standard issued by the FASB, SFAS 142. Research on IFRS 3 is much less present. The value-relevance of amortisation has been examined in several ways. Overall, there is mixed evidence on the value relevance of amortisation of goodwill. Nevertheless, the IASB and FASB decided to change their accounting standards.

Jennings et al. (1996) investigate the relation between accounting goodwill numbers and equity values. Regarding the amortisation of goodwill, they find that there is a negative relation with equity value. This means that investors perceive amortisation as a relevant accounting number that indicates a decrease in the value of goodwill, the value of the company and therefore also its share price. The authors acknowledge, however, that evidence on these results is somewhat weak, indicating that goodwill may not decline in value for all companies or not as fast as the expected economic lifetime assumes. Although this is a limitation, the paper does show that amortisation of goodwill is relevant information to investors.

Jennings et al. (2001) examine whether goodwill amortisation had an effect on the usefulness of earnings. In their valuation of share prices, investors might find an earnings number excluding goodwill amortisation more relevant. Two valuation models are compared to investigate whether this is the case. The results show that the model excluding goodwill amortisation has more explanation power than the model including it. The authors also test a model in which the goodwill amortisation number is added back, separately from the earnings number, to see whether goodwill amortisation is even relevant at all. In contrast to Jennings et al. (1996) their results show that this is not the case. The authors therefore conclude that goodwill amortisation is not useful to investors and only adds noise to their valuation of share prices.

Moehrle et al. (2001) perform a similar study on the information content of goodwill accounting numbers. Their paper is based on the plans of the FASB to change its earlier Exposure Draft *Business Combinations and Intangible Assets*. The Exposure Draft proposed to let companies report several earnings numbers, one of them excluding goodwill amortisation. This paper also uses a model comparing the explanation power of the different earnings numbers. Inconsistent with the findings of Jennings et al. (2001), the authors find that the explanation power of earnings numbers excluding or including amortisation of goodwill do not differ significantly, even for a sample of firms with large goodwill amortisation numbers. Amortisation is therefore not a source of noise, because

the explanatory power is not significantly lower for this model. However, the conclusion that goodwill amortisation is not relevant to investors is maintained in consistency with Jennings et al. (2001), as including goodwill amortisation does not increase the explanatory power of the model.

Li and Meeks (2006) investigate the value relevance of goodwill in the UK. They argue that this market is important regarding goodwill, as it is the second largest takeover market. Especially between 1997 and 2002, the years used in the sample, takeovers were very common and goodwill was recognized in many of them. Consistent with the findings of Bugeja and Gallery (2006) they find that goodwill is value relevant but that it diminishes over time. They also find that amortisation is not relevant to investors.

Churyk and Chewning (2003) performed a similar study regarding the relevance of goodwill amortisation. Like the previous studies, they use database Compustat for a sample selection with firms listed on equity indices in the US. Their results show that goodwill amortisation is negatively related to equity values. This means that the market perceives goodwill as an asset that declines in value over time, consistent with the findings of Bugeja and Gallery (2006). Churyk and Chewning (2003) argue that FASB's Standard Nr. 142, that prohibits amortisation, is not based on valid assumptions. The authors state that goodwill should be treated like any other economic asset and that it should be amortised over its useful economic life. However, the IASB states in IAS 36 *Impairment of Assets*, that goodwill should be reviewed for impairment annually. This means that companies have to impair goodwill, even when they did not expect to be required to, because no impairment event had taken place. This implies that the argumentation of Churyk and Chewning (2003) is not applicable to IFRS 3, as declines in the value of goodwill are always recognised in the form of an impairment expense.

2.4 Goodwill Impairment

There is less academic literature on the impairment method of goodwill. This is no surprise since this method is in effect for a few years only.

Chambers (2006) examines the effects of SFAS 142 on financial reporting by using a value relevance model. Not only does he test the relevance of impairments, but he also investigates the effects of the elimination of goodwill amortisation. The results, consistent with the goals of the FASB, show that financial reporting quality has improved by using impairments. However, the author also finds that the elimination of the amortisation method resulted in lower quality of reporting. In addition, he creates a fictional accounting system that includes both methods. This system results in the most relevant accounting numbers. Overall, Chambers (2006) concludes that the introduction of SFAS 142 led to higher accounting quality, consistent with the goals of the FASB. A similar work was undertaken by Chen et al. (2004). The authors here make a distinction between a one-time impairment at adoption and the following yearly impairments. The initial impairment is caused by the difference between the carrying amount after all amortizations over the past years and the recoverable amount of the goodwill. The change in accounting standard could possibly

have led to a one-time extra impairment. Chen et al. (2004) also investigate the timeliness effects of the impairment. Their results show that prior share prices already incorporated some parts of the initial impairment and the impairment in the first year. Interesting is that the first year impairment has a significant relation with share prices in the previous year, indicating that returns lead earnings and that the accounting information is fairly timely since there is only a gap of one year between the economic decline in value of the goodwill (measured by the share price return) and the recognition of the impairment in the financial statements. Consistent with Chambers (2006), the authors find that value relevance increases after the adoption of SFAS 142

Lapointe et al. (2009) also examine an initial impairment, but one that is based on the retroactive method. In contrast with the cumulative method in which the initial impairment is reflected in the income statement, the retroactive method requires firms to adjust retained earnings in the opening balances for the impairment amount. This method is also required following IFRS 3. Using a Canadian setting, the authors investigate the timeliness and value relevance of these impairments. Their results are similar to those of Chen et al. (2004). The authors conclude that the retroactive method, soon to be required for firms reporting under US GAAP, is consistent with the objectives of the FASB regarding the quality of accounting information.

More evidence on the effects of SFAS 142 is provided by Churyk (2005). She examines whether the elimination of the amortisation of goodwill is appropriate. This is done by comparing market valuations of goodwill, based on the Exposure Draft that the FASB issued on SFAS 142. The author finds that goodwill at acquisition is almost never overvalued and argues that this implies that systematic amortisation is not required. However, she does find indications of a value decline of goodwill in subsequent periods. Stock price decreases or the situation when the book value of equity is greater than the market value of the company are events that justify an impairment of goodwill (Churyk, 2005). The conclusion is that the impairment method is justified and also that the elimination of the method of amortisation is appropriate.

There is also evidence available from other settings than the US GAAP. Between 1998 and 2002, accounting regulation in the UK allowed companies to use the impairment method of accounting besides the amortisation method. Li and Meeks (2006) use this period to investigate the relevance of impairments. Not surprisingly, impairments were most common in 2002, the final year in the sample. Besides the economic downturn in that year, organisations were more familiar with impairment testing than in preceding years. In contrast with amortizations, impairments are perceived relevant by investors. The coefficient on impairments is large, interpreted by the authors as a possible overreaction of the market to bad news or as a signal to investors of lower future earnings. Although the results are very convincing, this study is limited because only one year in the sample is useful for investigating impairments.

Iatridis et al. (2006) investigate the timeliness of impairments in the UK, using a sample of firm-years that is subject to the same accounting regulations as the sample of Li and Meeks (2006). They examine the question whether the goodwill impairments are

associated with a decline in equity market values in the year preceding or in the year of the impairment. Their results show that this happens for both cases. Impairments are timely because of the significant relation between the impairment and the negative stock return in the same or preceding year. However, the authors also note an important limitation of their study. All firms in the sample reported an impairment but it is not certain that all firms that should have reported one did so. This means that firms that may have not reported impairments in a timely manner are left out of the sample, caused by the small range of sample years (2000 and 2001). This sample selection bias might have affected the results of their study.

In 2005, the European Union decided to require companies to report their financial statements in accordance with IFRS. This created an opportunity for academic studies to investigate the effects of IFRS 3, as many companies used this standard for the first time in that year. The work undertaken by Barksjö and Paananen (2006) and Hamberg et al. (2006) are examples of such studies. However, because of the recent adoption of IFRS, the amount of such studies is limited. They could also suffer from problems with data availability and their conclusions may therefore not be supported by strong evidence.

Barksjö and Paananen (2006) test the value relevance and the timeliness of the financial statement information before and after the implementation of IFRS. Not only do they compare the impairment expense with the amortisation expense, but they also make a distinction between companies with relative high and low amounts of intangible assets. They argue that previous research on goodwill (for example Jennings et al., 2001) has shown that the method of amortisation does not result in financial statements reflecting the underlying economic value of goodwill and that therefore companies with high amounts of intangible assets will benefit of the change to the impairment method of accounting, by experiencing increased value relevance. The results of their work show that this hypothesis is supported. However, all other hypotheses regarding the increased value relevance and timeliness of accounting information are not. This means that the introduction of IFRS has not led to higher accounting quality. A limitation is however that only the years 2004 and 2005 are selected in the sample to make a comparison between both methods of accounting. It is possible that because firms were less familiar with the impairment method of accounting, investors perceive the information disclosed as less reliable because of (possible) measurement errors. An extension of the sample selection with extra years could therefore provide more reliable evidence on the comparison between the two methods of accounting for goodwill.

Hamberg et al. (2006) used the same setting as Barksjö and Paananen (2006) to examine the effects of the adoption of IFRS, namely the Swedish stock market. The authors find evidence of goodwill being more persistent under the impairment method than under the amortisation method. This is consistent with expectations, as an impairment expense may not arise every year. Goodwill persists therefore longer as an asset on the balance sheet. However, this sample selection is also limited. It could be therefore possible that, impairments were not very common in the sample year(s) and that this affected the conclusions. Secondly, Hamberg et al. (2006) test the relevance of the reported goodwill by

using a trading strategy in which they buy stocks with relative high amortisation costs and sell stocks with relative low amortisation costs. The authors expect to earn abnormal returns because of the longer persistence of goodwill under the impairment method of accounting, but only if investors did not incorporate the changes already in prices. Their results show that this is indeed the case. Investors therefore perceived the higher persistence of goodwill as new information, although the results are not significant, Hamberg et al. (2006) conclude that overall the introduction of IFRS led to more relevant accounting information.

Oliveira et al. (2010) studied the value relevance of earnings and intangible assets like goodwill and R&D of listed non-finance companies in Portugal. First, the authors analysed if these accounts were value relevant and then they proceeded with analysing if the introduction of IFRS changed their value relevance. The reasoning of the authors was that any increase in value relevance, due to the adoption of IFRS, would be more pronounced in circumstances where the adoption of IFRS was mandatory and took place in a code law (rather than a common law) country. Thus, with Portugal being a code law country, the authors expected their results to be pronounced. However, the increase in the value relevance of goodwill that they observed can only be considered slight. Where goodwill turned out to be slightly more value relevant, earnings actually turned out to be less value relevant after the adoption of IFRS.

3. Research Method

3.1 Hypotheses

It was mentioned earlier that the introduction of the impairment method of goodwill accounting by the IASB was motivated by the belief that the method of amortisation led to arbitrary accounting (IASB 2005). The information that is reported on the basis of such a method is therefore expected not to be relevant for investors in decision-making, because the information does not reflect the underlying (change in the) financial position of the firm. As it is the goal of the IASB to make accounting information more relevant, new accounting standards are therefore expected to add relevance for decision makers.

More specifically, the introduction of IFRS 3 and the amendments to IAS 36 and IAS 38 are expected to increase the relevance of goodwill accounting numbers. This means that the impairment expense on goodwill should be more relevant than the amortisation expense. Evidence for this statement regarding SFAS 142 is among others provided by Lapointe et al. (2009), Chambers (2006), and Chen et al. (2004). Barksjö and Paananen (2006) find no evidence for this statement however, in examining the effects of IFRS in Sweden. In this light our first hypothesis examined here is:

H1: The value relevance of goodwill impairment expense is higher than the value relevance of goodwill amortisation expense.

One specific element of relevance mentioned in the framework is timeliness. This measure considers the gap between the economic decline in goodwill and the recognition of this

decline in the financial statements. Under the amortisation method, the reported value of goodwill steadily declined following the amortisation expense that was subtracted from the balance sheet amount every report period. Any decline in the underlying economic value of the goodwill was not recognized. Therefore, it could be possible that the reported amount was higher or lower than the economic value. Under the impairment method, firms are required to do an annual impairment test. This should lead to a more timely recognition of the decline in economic value of the goodwill, as it is now reported when it actually occurs. Chen et al. (2004) find support for this statement regarding SFAS 142 and Iatridis et al. (2006) for regulation in the UK. However, Barksjö and Paananen (2006) find however no evidence for this statement regarding IFRS in Sweden. The second hypothesis therefore is:

H2: The goodwill impairment expense is timelier than the goodwill amortisation expense.

3.2 Research Models

Our hypotheses are tested using two models that are commonly used in the academic literature: a market valuation model (based on the work of Ohlson, 1995); and an earnings-return model respectively.

3.2.1 Market Valuation Model

Value relevance was earlier described as the relation between market information and accounting information. If accounting information is value relevant, then investors use this information in their valuation of the company and therefore for decision making. Ohlson (1995) developed a market valuation model that relates accounting information with the market value of the company. The model formulates the market value of the company as a function of the book value of equity and the earnings number. It is useful to break down the Ohlson model into two parts: Residual Income Valuation and Ohlson's information dynamics. Residual Income Valuation is based on the notion that investors base security prices on the amount of future dividends. However, it does not offer any guidance on how to proxy for the boundless series of expected abnormal earnings.

The Ohlson model builds on the foundations supplied by the Residual Income Valuation model by adding information dynamics as well as on the more solid foundation of Modigliani and Miller (1958) assuming perfect capital markets, the Ohlson model is thus not meant to be descriptive of the real world. The addition the Ohlson Model provides to empirics is a testable pricing equation that identifies the roles of accounting as well as non-accounting information. Dechow et al. (1998) find support for these information dynamics. However, Dechow et al. (1998) also find that the Ohlson Model is only slightly better than traditional valuation models like the Gordon model.

The Ohlson Model was written as a model for one single firm. Selecting firms from different countries and putting them in one sample could mean that the results could turn out biased because of the accounting systems differing across borders. This will however

only marginally affect our study because our samples include only companies that use their respective local GAAP and after 2005 IFRS. We mitigated the potential bias towards only large companies by choosing a database that contains smaller as well as larger companies.

Our basic model is:

$$MVE_{it} = \beta_0 + \beta_1 BVE_{it} + \beta_2 NI_{it} + \varepsilon_{it}$$

Where MVE_{it} is the market value of the company, BVE_{it} is the book value of equity and NI_{it} is the net income number. Value relevance is measured as the explanatory power of the model. If the accounting information is useful for decision makers, then it will have a strong relation with the market value of the company and the explanatory power of the model is high. If, on the other hand, accounting information is not useful, then the explanatory power of the model will be low.

One major advantage of the model developed by Ohlson (1995) is that extra variables can be easily added to the equation. As a consequence, two models and two explanatory powers can be compared with each other. A conclusion on which accounting information is more value relevant can be drawn from this comparison.

To test our first hypothesis, we use the basic Ohlson-model (1995) with some necessary adjustments. To compare the value relevance of goodwill impairments and goodwill amortisation, two models are needed, each containing one of the two different variables. The first equation is as follows:

$$MVE_{it} = \beta_0 + \beta_1 BVE_{it} + \beta_2 NI_{it} + \beta_3 AMORT_{it} + \varepsilon_{it} \quad (1)$$

Where $AMORT_{it}$ is the amount of goodwill amortisation for the year and all other variables are as previously defined. The value of the company is measured three months after the fiscal year-end to make sure that the financial statements have been made public and that the information is available to investors. All variables were deflated by the number of shares outstanding to control for size differences. The extended model should have a higher explanatory power if investors view the amortisation variable as useful, valuable and relevant. As discussed earlier, Moehrle et al. (2001) find that there is no significant difference, while Jennings et al. (2001) even find that the explanatory power decreases, indicating that the variable adds noise to the valuation. However, this comparison is not the focus here and it is not further examined in detail.

Equation (1) will be compared with a model that contains an impairment variable:

$$MVE_{it} = \beta_0 + \beta_1 BVE_{it} + \beta_2 NI_{it} + \beta_3 IMP_{it} + \varepsilon_{it} \quad (2)$$

Where IMP_{it} is the amount of goodwill impairment for the year and all other variables are as defined previously. Again, all variables will be deflated by the number of outstanding shares and market value is measured three months after fiscal year-end. Equation (2) should also have a higher explanatory power than the basic Ohlson-model (1995) if investors view impairment of goodwill as useful, valuable and relevant. For example Lapointe et al. (2009) find that this is the case, while Barskjö and Paananen (2006) find no evidence for this, although they use a slightly different method.

Hypothesis 1 states that the value relevance of goodwill impairments is higher than the value relevance of goodwill amortisation. This is measured using the explanatory power of equations (1) and (2). Following this hypothesis it is expected that the value relevance of equation (2) is higher than that of equation (1). Information on the variables $AMORT_{it}$ and IMP_{it} could give more evidence on the comparison of the value relevance, depending on the significance of these variables in the model.

3.2.2 Earnings-Return Model

Timeliness was previously described as “*having information available to decision makers before it loses its capacity to influence decisions*” (IASB/FASB, 2008, p. 21). This definition also relates market information with accounting information. However, timeliness is not concerned with the extent to which accounting information is used in market valuation, but with the timely recognition of a change in the economic value of the company in the financial statements. The following equation applies to this situation:

$$E_{it} = \chi_0 + \chi_1 R_t + \chi_2 R_{t-1} + \chi_3 R_{t-2} + \varepsilon_t \quad (3)$$

E_{it} = earnings deflated by the price per share at $t-1$

R_t = the return on the firm from 9 months before the fiscal year-end to 3 months after

R_{t-1} = the return on the firm from 9 months before the fiscal year-end to 3 months after for the preceding year

R_{t-2} = the return on the firm from 9 months before the fiscal year-end to 3 months after for the second preceding year

As with the share price measure in the value relevance model, the return period before the fiscal year-end, is used to enable the financial statement information to be incorporated in the valuation by investors. The earnings measure is deflated by the price per share at $t-1$ because the return figure is also relative and based on the share price at t , $t-1$ and $t-2$.

The earnings-return model tries to measure the extent to which the returns are reflected in earnings. If earnings are completely timely, then all changes in economic value (captured by the return measure) should also be present in the earnings number, because this is the change in the book value of equity of the company. Other equity transactions, for example dividends, are controlled for in the returns measure.

Yet, earnings are almost never completely timely. This is caused by the fact that the valuation of the share price by investors depends on expectations of future economic benefits. If a company, for example, makes an investment that will generate a lot of profits in the future, this is taken into account by investors in their valuation. The share price will probably rise and the return on the firm goes up. However, the deal itself is not recognized in the financial statements yet, resulting in returns that lead earnings. The same argument can be made regarding the goodwill accounting method. When companies are allowed to amortise goodwill over a certain fixed period, investors are able to estimate the amortisation expense very well, only depending on the fact whether new goodwill is acquired or

not. Earnings are therefore not timely, because the expense is incorporated in the share price valuation far before the actual expense will be recognized. On the other hand, the impairment test method leads to an impairment expense that is less easy to predict, but should be more related to the change in underlying economic value of the goodwill. Taken together, impairments should be timelier and therefore result in higher associations with earnings than amortisation expenses. This expectation is also formulated in hypothesis 2. We use returns for multiple years, to see whether returns lead earnings and also to make a comparison between amortisations and impairments.

Following Barksjö and Paananen (2006) and Chen et al. (2004), we regress equation (3) using E_{it} as the earnings number with and without the amortisation or impairment expense. This distinction can give more information about the timeliness of the goodwill expense charge itself. For example, both Barksjö and Paananen (2006) and Chen et al. (2004) find that earnings numbers that include the goodwill amortisation or impairment are timelier than earnings numbers excluding these figures, indicating that the financial statements contain new information that investors use in their valuation and therefore are reflected in the return of the company.

3.3 Data selection

The data used in the paper were extracted from the financial database Datastream. The variables included in the dataset are the book value of equity -excluding the amortisation or impairment variable respectively-, earnings for the year, share price at three months after fiscal year end and either the amortisation or impairment amount, depending on the year of the sample.

To make a comparison between the two methods, data from 2001-2004 for the amortisation method and 2005-2010 for the impairment method are used. Although these periods are not equal of length, this does not by definition implicate that they are not comparable, due to (possible) different economic conditions, the number of companies recording an amortisation or impairment expense on goodwill etc. However, potential differences in the datasets could affect the conclusions drawn.

The data were selected by using the 'Worldscope' database from Datastream. Companies from Germany, France, Spain and the Netherlands were selected. In all of these four countries, the benchmark treatment under their respective local GAAP was that goodwill should be capitalised and subsequently systematically amortised over its useful life, with a rebuttable presumption that the useful life of goodwill would not exceed twenty years from initial recognition. The 'Worldscope' database contains small as well as large companies. Thus, the sample is not biased in terms of company size. For the years before 2005 we only selected companies that used their own local GAAP and for the years starting 2005 only companies that use IFRS to comprise their annual accounts. Outliers were deleted by using scatter plots.

4. Results

4.1 Market Valuation model

Hypothesis 1 is examined by comparing equations (1) and (2). The results on equation (1) are presented in Table 1.

Table 1: Market valuation model – Amortisation Expense and Descriptive Statistics

	N	Intercept	BVE	NI	AMORT	
2001	302	9,2	1,0	0,6	13,3	
p-value		<0,01	<0,09	<0,01	<0,01	
t-statistic		6,6	15,2	1,7	3,6	
2002	343	4,8	0,7	1,9	4,5	
p-value		<0,01	<0,01	<0,01	<0,01	
t-statistic		5,9	12,6	8,0	10,1	
2003	317	13,4	0,3	2,7	6,6	
p-value		<0,01	<0,01	<0,01	<0,01	
t-statistic		10,2	12,6	9,0	6,5	
2004	327	9,6	0,6	4,3	7,8	
p-value		<0,01	<0,01	<0,01	<0,01	
t-statistic		10,0	13,5	11,9	12,6	
Pooled	1289	11,4	0,5	2,6	6,1	
p-value		<0,01	<0,01	<0,01	<0,01	<u>Adjusted R²</u>
t-statistic		19,2	24,5	15,9	13,6	0,55

2001-2004	<i>Share price</i>	<i>Equity</i>	<i>Net income</i>	<i>AMO</i>
Mean	20,42	11,42	0,48	0,38
Standard Error	0,81	0,82	0,10	0,03
Median	11,11	5,40	0,42	0,08
Standard Deviation	28,91	29,56	3,48	1,25
Sample Variance	835,68	873,85	12,08	1,55
Kurtosis	16,20	351,63	24,12	60,91
Skewness	3,51	15,14	-1,42	6,38
Range	247,82	833,54	64,23	24,90
Minimum	0,18	-61,16	-33,32	-8,50
Maximum	248,00	772,38	30,92	16,40
Sum	26315,19	14714,09	613,99	488,22
Count	1289,00	1289,00	1289,00	1289,00
Confidence Level (95,0%)	1,58	1,62	0,19	0,07

For the years 2001-2004, there were 1289 firm-years that contained a goodwill amortisation expense. The results on the variables BVE_{it} , NI_{it} and $AMORT_{it}$ are very consistent and conclusive, because they are all significant at the 1% level over all firm-years and in the pooled sample, except for Net income in year 2001. This means that investors use these accounting information numbers in their valuation of the company. Of course this result is not very surprising; because the book value of equity and changes therein, the net income, represent the value of the company that belongs to the equity holders. More interesting are the results on the amortisation variable. Besides being significant, $AMORT_{it}$ shows an even higher t-statistic than Net income in 2001 and 2004.

It is also remarkable that the coefficients on the amortisation variable are all positive. This would mean that an increase in goodwill expense leads to an increase in share price and the value of the company. Clearly this is contradictive to the concept that higher amortisation expenses decrease the market value of a company. The explanatory power of the model is the reported Adjusted R^2 of 55.1%. This means that just over fifty five percent of share prices can be explained by the combination of the three variables in the model. The same regression is also run without the Amortization variable (result not shown here), which show a lower Adjusted R^2 of 51.3%.

The results on equation (2) are presented in Table 2. The first obvious difference between the two equations is that there are far more firm-years that contain an amortisation expense than an impairment expense. This is caused by the fact that amortisation is an expense that reoccurs every year over the economic useful lifetime of the goodwill. Under the impairment method, it is possible that the value of goodwill on the balance sheet is not affected because the recoverable amount exceeds the carrying amount. An impairment expense is then not recognised. During the early years of the sample (2005-2007), economic conditions were relatively good and it is probable that for many companies, the recoverable amount of the goodwill exceeded the carrying amount. However, in 2008 and 2009 the number of firms, reporting an impairment expense, clearly increases again. In 2005 the number of firms reporting an impairment expense also seems to be higher than in the two years to come. This might be due to the fact that under IFRS firms are allowed to readjust the value of the goodwill they have on their balance sheet downwards as well as upwards, although never higher than its amortised value. Firms that wrote off their goodwill quicker might have taken advantage of the opportunity by revaluing their goodwill upwards in the first year of IFRS adoption. Although the total number of firm-years is lower than for the sample used for equation (1), there are still enough observations present to come to a reasonable strong conclusion about the goodwill impairment expense.

Table 2: Market valuation model – Impairment Expense and Descriptive Statistics

	N	Intercept	BVE	NI	AMORT
2005	146	9,4	1,4	3,3	-5,8
p-value		<0,01	<0,01	<0,01	0,5
t-statistic		6,5	11,9	5,4	-0,7
2006	132	8,8	1,4	2,5	-5,0
p-value		<0,01	<0,01	<0,01	0,4
t-statistic		4,0	9,9	3,8	-0,8
2007	109	9,8	0,5	2,1	2,3
p-value		<0,01	<0,01	<0,01	0,2
t-statistic		6,1	5,2	4,3	1,3
2008	141	5,2	0,6	1,0	-1,6
p-value		<0,01	<0,01	<0,01	0,2
t-statistic		4,3	12,7	3,5	-1,2

Amortisation Versus Impairment of Goodwill and Accounting Quality

2009	157	8,8	0,7	1,3	-1,5	
p-value		<0,01	<0,01	<0,01	0,5	
t-statistic		6,5	13,8	3,4	-0,8	
2010	118	10,37	0,37	4,89	4,6	
p-value		<0,01	<0,01	<0,01	0,3	
t-statistic		4,98	4,31	6,57	1,0	
Pooled	802	9,94	0,73	3,10	-0,4	
p-value		<0,01	<0,01	<0,01	0,7	Adjusted R²
t-statistic		12,78	20,10	14,53	-0,3	0,66

2005-2010	<i>Share price</i>	<i>Equity</i>	<i>Net income</i>	<i>IMP</i>
Mean	24,87	16,03	1,09	0,29
Standard Error	1,03	0,76	0,13	0,02
Median	14,59	8,14	0,55	0,08
Standard Deviation	29,14	21,45	3,63	0,57
Sample Variance	849,11	460,32	13,16	0,33
Kurtosis	7,67	7,59	10,83	16,85
Skewness	2,26	2,46	1,16	3,67
Range	223,97	172,43	48,44	5,04
Minimum	0,04	-18,78	-20,40	-0,36
Maximum	224,00	153,66	28,03	4,68
Sum	19943,25	12858,96	871,22	233,85
Count	802,00	802,00	802,00	802,00
Confidence Level(95,0%)	2,02	1,49	0,25	0,04

Consistent with equation (1), BVE_{it} and NI_{it} are significant for all the years in the sample, for at least at a 1% level. As explained earlier, this result is of no surprise. But the coefficients on the impairment expense do not have the same characteristics as those on the amortisation expense. First, they are all negative, except for the years 2007 and 2010, indicating that an increase in impairment expense results in a lower market valuation. This is consistent with the concept that higher impairment expenses lead to lower equity values and share prices. Second, the pooled sample shows that overall, the IMP_{it} coefficient is insignificant. When the separate years are examined, IMP_{it} also shows insignificant results for all years.

On the other hand, the explanatory power of Equation (2) has an R^2 of 66.1%. Compared with the explanatory power of 55.1% of Equation (1), it can be concluded that the change from amortisation of goodwill to impairment of goodwill leads to higher value relevance. There is, however, a very present possibility that the increased explanatory power is the result of increased relevance of one of the other variables, BVE_{it} and NI_{it} . To add credibility to the conclusions, additional analyses (not reported here) were also conducted by performing a regression on the models without the amortisation or impairment variable. The analyses show that for the second regression the increased relevance is caused by the BVE_{it} and NI_{it} variables and not by any changes in the relevance of the Impairment variable. For Equation (1), it is clearly the Amortisation expense that contributes to the explanatory value of the model.

Hypothesis 1 states that the value relevance of goodwill impairment is higher than the value relevance of goodwill amortisation. Although the explanatory power for equation (2) is higher than for equation (1), it is concluded that this hypothesis cannot be confirmed. Therefore, in the present study goodwill impairments are not more value relevant than goodwill amortisation.

When looking at the years from 2007 to 2010 separately, a drop in explanatory power of the model is clearly seen. For the year 2007 the adjusted R^2 is still 71.7%, but in 2008 it drops to 58.8%. It does, however, recover and in 2010 it is back up to 68.9%. The drop in 2008 might be due to the hit of the financial crisis. An insecure time period for investors and companies alike might make it more difficult for the investors to value a balance sheet item like goodwill, and the future cash flows that are supposed to flow from it, now that the true accounting, fair value, number is reported.

4.2 Return Valuation model

Hypothesis 2 is examined by running a regression on equation (3) over the periods 2001-2004 and 2005-2009. It states that the impairment expense is timelier than the amortisation expense. This expected increased timeliness is interpreted in several ways: increased explanatory power of the model for the impairment regression, a shift in the value of the coefficients on certain variables for the period 2005-2009 and larger differences between the two earnings measures used.

The earnings measure in both periods is split up into the actual earnings number (including the amortisation or impairment expense) and an adjusted earnings number that excludes the amortisation or impairment component. This separation can give some additional insights in the information content of the amortisation or impairment expense in the earnings number. In contrast with the market valuation model, pooling the results from 2001-2004 into one sample is not useful, because of the high correlation between these years. For example, the return over 2001 is used in the equation for 2002 (as R_{t-1}) and 2003 (as R_{t-2}).

The results of the regression of equation (3) for the whole period 2001-2004 are presented in table 3. One of the first conclusions that can be drawn is that only the returns for the years that are closest to fiscal year end have a significant relation with the earnings numbers (including and excluding the amortisation expense). When earnings are timely, one would expect a strong relationship between the earnings number and the return measure for the same year (R_t) and a less strong relationship with the return measure for the other years (R_{t-1} and R_{t-2}). This is the case for all of the years in the sample. It can therefore be concluded that earnings are timely for the sample years 2001-2004.

Table 3: Timeliness of the amortization expense, 2001 – 2004

	<u>N</u>	<u>Interc</u>	<u>Rt</u>	<u>Rt-1</u>	<u>Rt-2</u>		<u>N</u>	<u>Interc</u>	<u>Rt</u>	<u>Rt-1</u>	<u>Rt-2</u>
	<i>Earnings including amortisation component</i>						<i>Earnings excluding amortisation component</i>				
2001	320	0,0	51,7	0,1	-0,2	320	0,0	46,2	0,2	-0,2	
p-value		0,0	0,0	0,2	0,0		0,0	0,0	0,1	0,0	
t-statistic		4,2	8,9	1,4	-2,3		5,0	8,0	1,7	-2,3	
Adj, R ²					0,36						0,33
2002	385	0,0	85,5	0,1	-0,4	385	0,0	64,2	0,1	-0,3	
p-value		0,2	0,0	0,1	0,0		0,0	0,0	0,0	0,0	
t-statistic		1,3	14,4	1,6	-3,7		4,4	11,5	2,0	-3,0	
Adj, R ²					0,51						0,43
2003	359	0,0	187,3	0,0	-0,3	359	0,0	185,5	-0,1	-0,3	
p-value		0,0	0,0	0,8	0,0		0,3	0,0	0,7	0,0	
t-statistic		-3,6	13,6	0,2	-2,8		-1,1	13,9	-0,4	-2,8	
Adj, R ²					0,51						0,50
2004	358	0,0	171,9	-0,1	-0,2	358	0,0	147,0	-0,2	-0,2	
p-value		0,0	0,0	0,3	0,0		0,2	0,0	0,1	0,0	
t-statistic		-2,5	16,3	-1,1	-3,2		1,3	14,7	-1,6	-2,7	
Adj, R ²					0,53						0,46

Another result visible from Table 3 is that the model with the adjusted earnings figure (excluding the amortization expense) has less explanatory power than the model with the regular earnings number. This is consistent with the results from the market valuation model, because it shows that including the amortisation expense in the earnings number gives the market new information and that investors use this piece of new information in their valuation. Conclusions on the increased timeliness of the impairment expense compared to the amortisation expense can only be made after a comparison with the results from the sample years 2005-2009. These are presented in Table 4.

Table 4: Timeliness of the impairment expense, 2005 – 2009

	<u>N</u>	<u>Interc</u>	<u>Rt</u>	<u>Rt-1</u>	<u>Rt-2</u>		<u>N</u>	<u>Interc</u>	<u>Rt</u>	<u>Rt-1</u>	<u>Rt-2</u>
	<i>Earnings including impairment component</i>						<i>Earnings excluding impairment component</i>				
2005	166	0,0	196,8	-0,4	-0,2	166	0,0	171,6	-0,4	-0,1	
p-value		0,0	0,0	0,0	0,3		0,4	0,0	0,0	0,6	
t-statistic		-3,0	15,4	-2,0	-1,0		-0,9	14,1	-2,6	-0,6	
Adj, R ²					0,72					0,68	
2006	164	0,0	58,8	-0,3	0,1	164	0,1	35,3	0,0	0,1	
p-value		0,0	0,0	0,2	0,0		0,0	0,0	0,8	0,3	
t-statistic		4,5	6,4	-1,3	2,1		6,9	4,0	0,2	1,1	
Adj, R ²					0,49					0,38	
2007	137	0,0	106,6	-0,2	0,1	137	0,0	66,6	0,0	-0,1	
p-value		0,0	0,0	0,0	0,6		0,0	0,0	0,7	0,5	
t-statistic		2,0	16,4	-2,0	0,5		5,1	10,9	-0,4	-0,6	
Adj, R ²					0,67					0,48	
2008	180	0,0	75,2	0,1	-0,2	180	0,0	52,5	-0,1	0,0	
p-value		0,1	0,0	0,5	0,0		0,6	0,0	0,5	0,5	
t-statistic		-1,8	9,7	0,7	-2,7		0,5	8,7	-0,7	0,7	
Adj, R ²					0,57					0,46	
2009	194	-0,1	180,7	-0,6	0,9	194	0,0	121,8	-0,4	1,0	
p-value		0,0	0,0	0,1	0,0		0,0	0,0	0,2	0,0	
t-statistic		-3,5	9,6	-1,6	2,3		-2,0	7,0	-1,2	2,9	
Adj, R ²					0,45					0,32	

When looking at the relationship between the return measures and the earnings number for the years in the sample, it can be seen that there is again a strong relationship

between the earnings number and the return measure for the same year (R_t). It can therefore be concluded that earnings are also timely for the sample years 2005-2009.

An interpretation of increased timeliness for the impairment expense is that the coefficients on returns close to the reporting date (R_t) are higher and, therefore, show a more significant relation, while the coefficients on returns further away from the reporting date (R_{t-1} and R_{t-2}) are lower, compared to those from the amortisation expense (Table 3). This expectation is supported by the results in table 4.

Another interpretation of increased timeliness of the impairment method is an increase in explanatory power of the model for the impairment regression compared with the results of the amortisation regression. Increased explanatory power shows a stronger relationship between earnings and returns and this indicates that the actual change in economic value of the company lies closer to the recognition of this change in the financial statements. The results from table 4 show that this is indeed the case and that R^2 are generally higher for the impairment regression. In contradiction to our earlier conclusion this justifies that the impairment expense is timelier than the amortisation expense.

It has to be pointed out that the previous two interpretations of increased timeliness are highly affected by other variables than only the amortisation or impairment expense. This is caused by the fact that the earnings and returns measures both contain information on all variables that affect the (change in) value of the company. However, it is not possible to find a proxy for the actual change in the economic value of goodwill, as the market only receives information on this change from the reported financial statements. The comparison between the regular earnings number and the adjusted earnings number without the amortisation or impairment expense creates the possibility to examine the effect of including this amount in the earnings definition.

Including the impairment expense in the earnings definition (the regular earnings number) increases the coefficients on the returns and increases the explanatory power of the model. When these increases are higher for adding the impairment expense than for adding the amortisation expense, it could be argued that the impairment expense is timelier. When comparing Tables 3 and 4, it can be concluded that this is in fact the case.

Hypothesis 2 states that the impairment expense is timelier than the amortisation expense. Based on several interpretations of increased timeliness, it can be concluded that the results on the regressions run, namely they support this statement. Consequently, hypothesis 2 is not rejected and it is concluded that the impairment expense appears to be timelier than the amortisation expense.

5. Summary and Conclusion

Regulation on goodwill accounting was changed by the IASB (IFRS 3) in 2001 and by the FASB (SFAS 142) in 2005. From that moment amortisation of goodwill was no longer allowed. Companies now have to perform an impairment test on goodwill annually, to test whether the recoverable amount of the goodwill is higher than the carrying amount. If not, then goodwill has to be impaired and a related expense has to be recognised.

The objective of this change in accounting standards is to increase the quality of accounting information. The IASB argues that when information is of higher quality, investors will prefer this because it is more useful for investment decisions. In the framework that the IASB and FASB produced together, all quality characteristics of accounting information are outlined. Relevance is pointed out as one of the fundamental characteristics, while timeliness is regarded as an enhancing characteristic.

Academic research has investigated both methods of goodwill accounting. However, no consensus is reached on their effect on accounting quality. The IASB motivated its change in accounting standard by stating that the amortisation method leads to arbitrary accounting (IASB, 2005), implying that the impairment method does not. Nevertheless, this statement is not supported by clear academic evidence.

In this paper it is examined whether the introduction of IFRS 3 and the accompanying change in method of accounting for goodwill has led to higher quality of accounting information. This is investigated by using the two important qualitative characteristics of accounting information identified by the FASB and IASB; namely value-relevance and timeliness.

It is believed that the present work contributes to academic literature in several ways. Firstly, both goodwill accounting methods are compared using the introduction of IFRS 3 by the IASB in 2005, whereas most academic research has focused on the effects of SFAS 142 regulation by the FASB. Also, since the standard was only issued in 2005, previous research suffered with data availability problems. In addition, some research on IFRS 3 used specifically the Swedish stock market as a dataset. In this paper, an extended sample of five and six years (2005-2009 and 2005-2010 respectively) is used to provide stronger evidence on the research questions at hand.

Based on this particular sample and the two accounting quality characteristics examined here (relevance and timeliness) the results show mixed evidence of increased accounting quality. The impairment expense on goodwill is not more relevant than the amortisation expense, indicating that investors do not find it more useful in their valuation of share prices and therefore also not for decision-making. This could very well be due to the fair value nature of the impairment expense. Fair value does represent the underlying economic and commercial events better but it also makes it more difficult for investors to interpret the accounting number. The results of the timeliness test, however, do show increased timeliness regarding the impairment expense in comparison with the amortisation expense. This indicates that there is a decrease in the gap between the actual decline in economic value of the goodwill and its recognition in the financial statements. Accounting quality has therefore increased regarding the timeliness characteristic. As a result, it is concluded that the objective of the IASB is not completely met. IASB should perhaps reconsider the content of the impairment method of goodwill accounting. The impairment test could, for example, be simplified making it easier for investors to understand the information content, or the IASB could publish extra guidelines to help companies perform an impairment test. These are options that could increase the relevance and timeliness of accounting information.

6. Future research and limitations of the Ohlson model

At this stage it is important to consider some limitations of the work given and suggest areas for future research. Although the sample size was increased in comparison to other studies that examined the effects of IFRS 3, it still has its shortcomings. One limitation is that the impairment method is investigated during the years 2005-2010. This means that impairments due to bad economic conditions were quite common during the last credit crunch. It could be very well possible that an extended sample size gives better information on accounting quality, regarding the relevance and timeliness of accounting information.

Future research could focus on studying the same research question, but by using other samples. Including more firm-years or a change in the market indices investigated could give more general insights into whether accounting quality increased as a consequence of the change in accounting method. Over time, companies become more familiar with the impairment method of accounting for goodwill, like measurements and disclosure requirements. It is therefore probable that the relevance and the timeliness of the impairment expense increases over time.

Another option would be to examine the research question regarding other qualitative characteristics of accounting information. Due to the lengthy limitations, there was a focus on the fundamental features of value relevance and the enhancing characteristic of timeliness. These are however not the only distinctiveness of accounting quality. The IASB and FASB also suggest *faithful representation* as the other fundamental characteristic, while *comparability*, *verifiability* and *understandability* are additional enhancing features. Future research could investigate whether accounting quality has improved regarding these other elements.

Hand and Landsman (1998) made a study that tested the Ohlson model. Their explanation for anomalies is the fact that dividends play a significant part in signaling profitability. The Ohlson model rules this part out. The Ohlson (1995; 1998) as well as the Feltham and Ohlson (1995; 1997) models presume a lack of information asymmetry and these models assume there is no role to play for dividends as signaling devices. Finance research has tested two alternative hypotheses. The first is Jensen's (1986) free cash flow theory; the second is the hypothesis in which managers use dividends as a way to signal information. (Bhattacharya, 1979; Kalay, 1980; Miller and Rock, 1985). Both hypotheses predict positive relationships between share prices and dividends.

Future research could also make use of even different types of models than the ones based on Ohlson's value relevance model which is a linear model. The dynamic nature of the market leads to very complex relationships between stock returns and earnings. Some researchers feel that these could be better explained by non-linear models. Freeman and Tse (1992) developed such a model. Relative to the linear model (earnings response coefficient), a non-linear approach provides a richer explanation as well as a higher explanatory power. The Freeman and Tse model rests on the assumption that earnings persistence is negatively

correlated with the absolute value of unexpected earnings. Future research could build further on their model which is an important contribution to empirics in predicting share prices in our complex current environment.

Another model that could give new insight might be the Gordon model (1959). The Gordon growth model is a variant of the discounted cash flow model, a method for valuing a stock or business. The model requires one perpetual growth rate, greater than negative 1 and less than the cost of capital. However, for many growth stocks the current growth rate can vary with the cost of capital significantly year by year. Also if the stock does not currently pay a dividend, like many growth stocks, more general version of the discounted dividend model should be used. One common technique is to assume that the Miller-Modigliani (1958) hypothesis of dividend irrelevance is true, and therefore replace the stocks' dividend D with E earnings per share. Using the above mentioned models in future research on the value relevance, timeliness as well as other characteristics of accounting quality of goodwill amortisation versus goodwill impairments would certainly contribute to the existing literature on this subject.

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