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## **The value relevance of Goodwill**

**ΝΙΚΟΛΑΟΥ ΕΛΕΝΑ**

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ΜΕΤΑΠΤΥΧΙΑΚΟ ΠΡΟΓΡΑΜΜΑ ΣΠΟΥΔΩΝ ΣΤΗΝ  
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ΔΙΠΛΩΜΑΤΙΚΗ ΕΡΓΑΣΙΑ

***THE VALUE RELEVANCE OF GOODWILL***

ΝΙΚΟΛΑΟΥ ΕΛΕΝΑ

Επιβλέπουσα Συμβουλευτική Επιτροπή

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## *ΕΥΧΑΡΙΣΤΙΕΣ*

*Στο σημείο αυτό θα ήθελα να ευχαριστήσω την κυρία Αντωνία Μπότσαρη , λέκτορα του Τμήματος Χρηματοοικονομικής και Τραπεζικής Διοικητικής για την ανάθεση της διπλωματικής εργασίας και τη συμβολή της στη στην διεκπεραίωση της, καθώς και τα άλλα δύο μέλη της τριμελούς επιτροπής για το χρόνο που διέθεσαν για τη μελέτη της εργασίας και για τις παρατηρήσεις τους.*

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## ABSTRACT

This study examines the value relevance of goodwill. It is held as thesis for the Master's Division of Banking and Financial Management at the University of Piraeus. Furthermore we explore the value relevance of impairment tests in contrast with the value relevance of goodwill amortizations. We estimate the impact of purchased goodwill and of its impairment on stock price for UK, German and French firms in the years 1997-2010. We confirm previous studies that purchased goodwill is value-relevant in the year of acquisition but it fades thereafter and that amortization is value-irrelevant for each country. By contrast with amortization we find that impairment is value relevant only for UK.

## Introduction and Background

According to the IASB's latest definition goodwill can be specified as "an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized" (IASB, 2008). The concept of goodwill has been a controversial topic for many years. First references of goodwill in the context of accounting date back to 1571 (Leake, 1914). Since then, the understanding of goodwill and its accounting treatment have undergone many changes.

One of the most significant changes associated with the mandatory adoption of IFRS was brought about by IFRS 3 *Business Combinations*. The significance is driven by the effect the abolishment of amortization has on financial statements and the importance and frequency of business combinations in the economy. The IASB introduced IFRS 3 in 2004, revolutionizing accounting for goodwill by making the usage of the purchase method obligatory and by replacing systematic amortization with annual impairment testing. The objective of the introduction is to move further towards fair value accounting in order to render the financial information companies provide on business combinations more relevant and reliable for financial statement users. The new regulation for business combinations accounting is said to have a higher potential to capture the economics underlying business combinations as the nature of goodwill differs substantially between firms, and individual impairment testing is more likely to reflect those differences.

In our study, firstly we want to examine the value relevance of purchased goodwill in contrast with goodwill acquired in previous years. Secondly we want to explore the impact of stock prices of firms' decisions to impair purchased goodwill with the introduction of IFRS 3. We estimate the impact of purchased goodwill and of its impairment on stock prices for UK, French and German acquisitions in the years 1997-2010.

The remainder of this study is organized as follows. The second chapter provides background about prior empirical research. The first section of the second chapter provides theoretical background on goodwill and the second section provides evidence on the value relevance of goodwill. Chapter 3; sample description and methodology provides information about research methods and results of prior literature. Our research method and the data used to empirically investigate our hypothesis, results of statistical tests and analyses are presented in chapter 4; valuation model and data and Chapter 5; results of our research.

## Prior Empirical Research

The International Financial Reporting Standards (IFRS) were formerly called the International Accounting Standards (IAS). IFRS are standards issued by the International Accounting Standards Board (IASB). IASs are standards issued by the IASB's predecessor : the International Accounting Standards Committee (IASC). Some of the IASs are amended by the IASB subsequent to IASB succeeded the IASC. IASB has adopted all standards issued by IASC and therefore, IFRS encompasses all standards by the IASC and the IASB.

When a company acquires another company, it usually expects greater benefits than the fair value of the net assets acquired. Purchased goodwill, measured as the excess of the cost of acquisition over the fair value of the identifiable net assets acquired, is recognized as a non-current asset at the time of acquisition.

### **A. Theoretical background On Goodwill**

Goodwill can be accounted for by several methods: (1) the amortization approach, (2) the impairment approach, and (3) the write-off approach. Under the amortization approach, goodwill is regarded as an asset embodying future economic benefits for which consideration has been given. It is considered that goodwill is a cost of resources that will be used up and that, therefore, it should be systematically amortized against earnings. Under this approach, it is possible to account separately for (a) the revenue generated as a result of the business combination, and (b) the expense of amortizing the goodwill. Given the fact that goodwill is a part of the acquisition cost, the method of systematic amortization would be consistent with the principle that any amount recovered in excess of an acquisition cost should be accounted for as profit. Furthermore, since (a) purchased goodwill may, over time, be replaced by internally generated goodwill, and (b) purchased goodwill, if not amortized, can itself generate goodwill internally, systematic amortization can effectively prevent internally generated goodwill from being included in the assets. Under the impairment approach, goodwill is capitalized and is impaired when the value of the goodwill is impaired. This approach is adopted by SFAS 142 and IFRS 3.



The impairment approach is supported by the following reasons.

- (a) The useful life of goodwill and the pattern in which it diminishes are both difficult to predict, yet its amortization depends on such predictions.
- (b) Not all goodwill declines in value and that goodwill that does decline in value rarely does so on a straight-line basis.
- (c) Straight-line amortization of goodwill over an arbitrary period does not reflect economic reality and thus does not provide useful information.

Under the write-off approach, goodwill is not regarded as an asset, therefore it is immediately written-off against reserves. Goodwill is not separable or independently realizable but exists only by virtue of a valuation of the company or business as a whole. It is not a resource consumed or used up similar to other productive resources. This approach was adopted by Statement of Standard Accounting Practice (SSAP) in the UK. The reasoning behind immediate write-off of goodwill and SSAP 22's preference for this method was (a) consistency with treatment of non-purchased goodwill, (b) write-off should not go through profit and loss account because goodwill is written off for accounting reasons and not because of any diminution in value of the asset, and (c) the write-off is unrelated to the results for the year.

Generally, the major standard setting bodies, IASB and the FASB, maintain that goodwill meets the definition of an asset, and therefore, should be recognized as an asset (IASB; FASB). Historically, both IASB and FASB used to require the amortization of goodwill over its useful life. This accounting practice was abandoned in favor of the "impairment-only" approach by FASB in 2001 with the adoption of SFAS 142 and SFAS 141 and by the IASB with the implementation of IFRS 3, which became mandatory for publicly listed European companies in 2005. The adoption of the impairment-only approach was motivated by the concern that reported goodwill and intangible assets do not adequately represent the underlying economic reality (FASB).

### The regulatory framework of IFRS 3

The IASB works towards the goal of introducing a single set of internationally accepted accounting standards that produce sound accounting information that is principles based, internally consistent and internationally converged. Two fundamental qualitative characteristics of accounting information the IASB states in its conceptual framework are relevance and reliability. In this sense, the IASB introduced IFRS 3 *Business Combinations* in 2004 and accordingly revised IAS 38 *Intangible Assets* and IAS 36 *Impairment of Assets*. The new standard supersedes IAS 22 and is effective since April 2004. The introduction is a joint effort of the IASB and FSAB and a follow up on US SFAS 141 and 142 that are effective since 2002 already. With the new accounting regulations it is aimed at improving financial reporting by producing accounting information that better reflects the economic realities of the underlying transactions and thus information that is more useful to financial statement users. “The objective of the IFRS is to enhance the relevance, reliability and comparability of the information that an entity provides in its financial statements about a business combination and its effects” (IASB, 2008). Under IFRS 3 the acquisition method is used to account for business combinations, meaning that for every business combination an acquirer has to be identified, with control as the decisive factor.

Goodwill is recognized as an asset representing the excess of the cost of the consideration paid over the acquirer’s interest in the net fair value of the identifiable assets, liabilities and contingent liabilities acquired. The most significant change from IAS 22 to IFRS 3 is the abolishment of systematic amortization of goodwill. Instead, companies are required to at least annually test goodwill for impairment. To test for impairment under IAS 36, goodwill must be allocated to one or more cash-generating units. This allocation of the cash flow earning capacity of goodwill across cash-generating units shall be done at the lowest level at which management monitors the goodwill. All cash-generating units which have goodwill allocated to them must be tested for impairment. If the recoverable amount of the cash-generating unit is less than its carrying amount impairment becomes necessary. Impairment is taken through the income statement and recognized under operating expenses. As a retrospective application is often infeasible, IFRS 3 has to be applied prospectively to

business combinations. A retrospective application is only allowed if all necessary information is completely available. The effect of IFRS3 on financial statements has been one of the most significant ones for companies being subject to the mandatory adoption of IFRS in 2005 as earnings are not affected by amortization of goodwill anymore (Carlin & Finch, 2009; Hung & Subramanyam, 2007). For firms adopting IFRS for the first time in 2005 that have recognized goodwill from business combinations previously it is required to stop amortization from the date of transition onwards, to eliminate the carrying amount of goodwill amortization against goodwill, and to test this carrying amount for impairment. There is no requirement for those companies either to apply IFRS 3 retrospectively. Any transitional impairment charges are written off against retained earnings. Generally, even if management are required to explain their reasoning the decision to impair or not impair goodwill is always based on subjective judgment. Over time, given that management make little impairment and hence goodwill increases, the importance of the impairment decision augments. For most jurisdictions, the change to IFRS 3 is quite substantial. The countries looked at in this study are France, Germany and the UK.

### **The Institutional Setting in France, Germany, and the United Kingdom**

Historically, the state and tax laws have dominated the development of French accounting. Individual French companies could until recently only deduct expenses for tax purposes if these expenses are also treated as expenses in their annual reports (Nobes and Parker 2004; Lamb, Nobes, and Roberts 1998). However, this influence has become weaker during the last 25 years due to external factors like the European Union and the globalization of capital markets (Nobes and Parker 2004). However, the level of the investor protection is still deemed as relatively low in France (Leuz, Nanda, and Wysocki 2003; d'Arcy 2000; La Porta, Lopez-de- Silanes, Sheifer, and Visny. 1998). The adoption of the Seventh Directive in 1986 had two important consequences, it made the publication of consolidated financial reports mandatory and it created flexibility in options for presentation and valuation (Stolowy and Ding 2003). The reason for the latter effect was that only individual entities are subject to taxation, and therefore, tax authorities had no interest in the accounting methods at the consolidated level. This, however, created a dualism in French accounting practices

between individual companies and groups. An early 1998 law allowed publicly traded French companies to report under International Accounting Standards or U.S. Generally Accepted Accounting Practices (GAAP) and waived the requirement to publish two sets of accounts (IAS) (Stolowy and Ding 2003). However, the law was never implemented since it was passed under three conditions, that the standards were translated into French, that the standards used complied with the EU Directives, and that the standards were formally approved by the CRC (the Accounting Regulation Committee). These conditions were never fulfilled (Stolowy and Ding 2003). This resulted in French companies choosing accounting practices in a somewhat opportunistic manner, a behavior that most likely will be curbed by the recent adoption of IFRS for publicly traded companies in Europe (Ding, Richard, and Stolowy 2007; Ding, Stolowy, and Tenenhaus 2003).

The accounting for goodwill in France has also changed dramatically over the last 25 years. Historically, any amortization of goodwill was forbidden, which was in line with the interests of the tax administration (Ding et al. 2007). The tax administration's view was that goodwill is an asset, goodwill cannot be systematically amortized, and goodwill can be written down under exceptional circumstances (Ding et al. 2007). However, in 1982, the amortization of goodwill was reintroduced. Moreover, the later application of the Seventh Directive opened up the possibility to write off goodwill against reserves, although, this was only allowed under exceptional circumstances (Ding et al. 2007). As in all other European countries, since 2005, amortization of goodwill is no longer allowed for publicly traded companies at the consolidated level and capitalized goodwill must be tested for impairment at least annually.

There are many similarities between the development of accounting in Germany and France. Accounting in both countries is by tradition conservative, governments have a strong influence, and there is a strong link between accounting and taxation (Ding et al. 2007). However, in Germany creditors and other non-financial companies (cross holdings) also play an important role (Glaum, Lichtblau, and Lindemann 2004; La Porta et al. 1998). Nevertheless, as in the case of France, the level of investor protection is deemed relatively low compared to more capital market oriented countries (Leuz et al. 2003; d'Arcy 2000; La Porta et al. 1998). German accounting did not change much until the transformation of the European Directives to national

law in 1985 (Haller 2002). However, it should be noted that after the transformation into the German Accounting Directives, tax-based accounting which clearly is in conflict with the true and fair concept in the Fourth Directive was still allowed (Soderstrom and Sun 2007). Also, as in France, in 1998 a new article was added to the law KapAEG<sub>3</sub> which allowed companies to adopt IAS or U.S. GAAP for consolidated accounts if they were traded on the Neue Markt Segment (New Market) of the German stock market (Ding et al. 2007). Studies of the level of compliance to these GAAPs suggest that disclosure levels and compliance were very low initially and some even referred to them as “German U.S. GAAP” and “German IAS” (Glaum and Street 2003).

Accounting for goodwill under the law that incorporated the Fourth Directive, allowed capitalization of acquired goodwill, that goodwill must be amortized over a period of maximum four years but can also be amortized over the period of benefit from it (Ding et al. 2007). The capitalization of goodwill in consolidated accounts was, on the other hand, required. The law also, as the Seventh Directive, allowed companies to write off the goodwill against equity (Ding et al. 2007). The law also allows amortization over maximum five years or over the useful life of the asset (Ding et al. 2007). As in the case of France, publicly traded German companies must now use the impairment only approach and test goodwill for impairment at least on a yearly basis.

Finally, contrary to the development in France and Germany, British accounting is not as influenced by the state or the tax laws (Nobes and Parker 2004). The United Kingdom has a capital-based financial system where the stock market plays an important role, especially from the 1970s and onwards (Ding et al. 2007; Nobes and Parker 2004). Hence, the development of accounting standards in the UK is indirectly driven by the shareholders’ need of information. In contrast to the Continental European countries, France and Germany, the UK has a strong investor protection environment (Leuz et al. 2003; d’Arcy 2000; La Porta et al. 1998). The professional accountants are main actors directly involved in the development of British accounting standards (Napier 1995). The first sign of major external influences on British accounting came in 1981 when the UK transformed the Fourth Directive into national law, followed by the transformation of the Seventh Directive in 1989 (Haller

2002). Another important source of influence is the United States with the most important equity market in the world. The UK accountancy profession was one of the founder members of the International Accounting Standards Committee (IASC) and the UK accounting development was influenced by the development of International Accounting Standards (IAS)<sup>5</sup> (Nobes and Parker 2004; Haller 2002). In the beginning of the 1990s there were significant differences between U.S. and UK accounting standards and practices (Weetman, Jones, Adams, and Gray 1998). The main differences were related to accounting for goodwill, retirement benefits, and deferred tax. Both UK accounting standards and the IAS/IFRSs have since then converged considerably with U.S. GAAP.

Over a very long time goodwill was not seen as an asset in the UK and was immediately expensed or rapidly amortized against profits (Ding et al. 2007). However during the 1980s the growth in the number and the magnitude of the value of acquisitions created a pressure on standard setters to come up with a solution with less negative impact on income (Ding et al. 2007; Peasnell 1996). This development resulted in the Statement of Standard Accounting Practice (SSAP) No. 22 which allowed either eliminating acquired goodwill directly to equity reserves or capitalizing and amortize over its useful life (Ding et al. 2007; Peasnell 1996). The vast majority of UK companies opted for eliminating the goodwill to equity reserves (Peasnell 1996). In 1990, the Accounting Standards Committee (ASC)<sup>6</sup> issued an exposure draft suggesting requiring firms to capitalize goodwill and amortize the asset over a period no longer than 40 years, an approach more in line with IAS and U.S. GAAP. The proposal was never put into effect. Later in 1997, the Financial Reporting Standard (FRS) 10 recommended capitalization of acquired goodwill and amortization over a period of up to 20 years, although also allowing non-amortization if an annual impairment test is conducted (Ding et al. 2007). This development could either be seen as the UK having to give in and adopt solutions applied by the United States (U.S.) and the IASC or a way to get away from the write-off practice without end up with a negative impact on income (Ding et al. 2007). As mentioned above, after the EU adoption of IFRS, only the impairment test only approach is allowed. In summary, it seems that both France and Germany were in some ways closer to each other with respect to accounting for goodwill and it seems that the influence of taxation on accounting resulted in less of a discussion about reporting of goodwill until the

introduction of the Seventh Directive. The reason for this is that the tax regulators were not concerned by group accounting since it is the legal entities that are subject to taxation. In the UK where investors become an increasingly important user of financial reporting, goodwill became a “hot topic” once the number and magnitude of acquisitions made increased in the late 1980s which resulted in a significant negative impact on firms’ reported income.

Table 1 provides a short summary of key facts on local accounting treatment of business combinations before IFRS 3.

<b>Germany</b>	
<i>Initial measurement and definition of goodwill</i>	<i>Subsequent measurement of goodwill</i>
<ul style="list-style-type: none"> <li>• Business combinations are usually accounted for as acquisitions, mergers are sometimes permitted/adopted in practice</li> <li>• Measurement of goodwill is similar to IFRS as long as the criteria for assets, liabilities and provisions under German GAAP are met.</li> </ul>	<ul style="list-style-type: none"> <li>• Goodwill can be written off either Immediately or over less than 4 years</li> <li>• Alternatively, goodwill is systematically amortized over its useful life (usually 15 but no more than 40 years)</li> <li>• No requirement for impairment testing</li> </ul>
<ul style="list-style-type: none"> <li>• Goodwill is calculated as the difference between the cost of the acquisition and the value of the individual assets of the company acquired less the liabilities at the time of acquisition</li> <li>• Assets and liabilities acquired are valued at the date of take-over, but no specific guidance for fair value determination does exist</li> </ul>	(Deloitte&Touche, 2001b; PwC, 2010)
<b>France</b>	
<i>Initial measurement and definition of goodwill</i>	<i>Subsequent measurement of goodwill</i>



<ul style="list-style-type: none"> <li>• A common method of business combination is merging one company into the other</li> <li>• Business combinations defined as acquisitions are accounted for using the purchase method; under certain conditions the pooling method (merger accounting) is allowed for acquisition, too</li> <li>• Goodwill measurement is similar to IFRS and arises as the difference between the cost of the acquisition and the acquirer's interest in the fair value of identified assets and liabilities acquired</li> </ul>	<ul style="list-style-type: none"> <li>• In specific rare circumstances goodwill is written off against reserves immediately</li> <li>• Goodwill must be amortised over a reasonable basis. No time limit is given but in general this is 20 years</li> <li>• Generally, an impairment review has to be carried out at the end of the year- but no detailed procedures how to perform such a review exist</li> </ul> <p>(Deloitte&amp;Touche, 2001a)</p>
<b>United Kindom</b>	
<i>Initial measurement and definition of goodwill</i>	<i>Subsequent measurement of goodwill</i>
<ul style="list-style-type: none"> <li>• UK GAAP requires merger accounting for business combinations in limited circumstances if specified criteria are met</li> <li>• The scope for business combinations is broader than under IFRS it also includes joint ventures, mutual entity combinations etc.</li> <li>• Goodwill is measured as the difference between the cost of the acquisition and fair values of identifiable assets and liabilities</li> <li>• UK GAAP is not as stringent as IFRS with regard to identifying all the acquiree's intangible assets at the acquisition date and to recognising them separately. Therefore, it does not rule out the possibility of many intangible assets being subsumed within goodwill</li> </ul>	<ul style="list-style-type: none"> <li>• The useful life is presumed to be 20 years or less, if justifiable the economic life may be longer or indefinite</li> <li>• UK GAAP requires a review of goodwill at the end of the first year after acquisition, but then only requires such reviews when there has been a trigger event or where goodwill is amortised over more than 20 years (or carried indefinitely without being amortised)</li> </ul> <p>(Deloitte&amp;Touche, 2001a, 2001b; PwC, 2005)</p>

*Main differences between IFRS 3 and local GAAP accounting for goodwill/business combinations in Germany, France and the UK (as prescribed by standards in 2001)*

## B. Evidence on the value relevance of goodwill

The question that we pose is whether changes in the accounting for goodwill were relevant to investors. Such a question is often asked in capital market based accounting research and it is then referred to as value relevance (Barth, Beaver and Landsman, 2001). A massive body of literature has documented that accounting



information is value relevant (see e.g. Holthausen and Watts, 2001; Barth, Beaver and Landsman, 2001). While there has been some doubt whether the relevance of accounting information is decreasing over time as a number of U.S. studies suggest so (Francis and Schipper, 1999; Lev and Zarowin, 1999). However, most non- U.S. studies find no change in value relevance (e.g. Beisland and Hamberg, 2009). So what are the effects of the European adoption of IFRS on the value relevance of accounting information? This is difficult to say as different studies have come to quite different conclusions. Most of the research has been conducted in a US setting. Even though some differences exist between US and international standards, those studies can be taken as a point of reference. In general, the academic literature comes to the conclusion that goodwill is an asset and is perceived as such by the market (Jennings, Robinson, Thompson Ii, & Duvall, 1996; L. T. Johnson & Petrone, 1998; McCarthy & Schneider, 1995).

Jennings, et al. (1996) investigate the issue of whether recording goodwill as an asset which is subject to systematic amortization results in financial information that reflects economic resources and their consumption. Even though the findings in Jennings, et al. (1996) suggest that goodwill is seen as an asset that declines in value over time, the association between amortization figures and share price is only weak reflecting the varying relations between goodwill amortization and market prices across firms. Therefore, the results indicate that an impairment test has greater potential to properly capture the individual value adjustments in goodwill, if properly implemented and where incentives of managers and financial statement users are aligned.

Several further studies on accounting amortization confirm that amortization figures are not informative to investors (Jennings, LeClere, & Thompson Ii, 2001; Moehrle, Reynolds-Moehrle, & Wallace, 2001). It is found that earnings before goodwill amortization explain significantly more of share prices than when goodwill amortization is added (Jennings, et al., 2001). Those findings support the abolishment of systematic goodwill amortization, as it does not add to the usefulness of accounting numbers to investors and analysts. The literature on goodwill impairment under new accounting regulations offers several findings.

Chambers (2007) finds that annual impairment testing under SFAS 142 has improved financial reporting in terms of value relevance, especially for larger financially distressed firms while for some smaller firms it has even decreased value relevance. This could be due to the implementation difficulties small firms are in particular faced with. By comparing as-reported under SFAS 142 accounting numbers to as-if reported under a different regulation accounting numbers, he also recognizes that the abolishment of amortization has decreased the quality of financial reporting. A scenario analysis of different alternatives to deal with goodwill namely impairment testing under SFAS 142, systematic amortization or both let the author come to the conclusion that giving firms the discretion to choose a firm-specific mixture of both impairment and amortization would result in the most value relevant financial statement figures. This suggestion however seems unpractical and potentially creates even greater concerns with respect to earnings management and verifiability.

The authors Bens, Heltzer, & Segal (2007) research whether concerns that fair value tests are easier for managers to manipulate are justified for SFAS 142. Under SFAS 142 the intangible asset impairment trigger has changed from previously used undiscounted cash flows to fair values. On average a negative stock market reaction to unexpected goodwill write-offs is observed in their samples both pre-and post SFAS 142. However, when introducing firm characteristics that could potentially influence the impairment valuation by the market into the analysis it can be observed that for high information asymmetry firms (characterised by the percentage of institutional investors or the number of analysts following) the negative market reaction towards unexpected impairment losses does not persist after SFAS 142. This provides some evidence to the criticism that fair value based goodwill impairment testing is difficult to implement reliably for some firms, rendering it non-credible and thus reducing information content of accounting numbers.

Chen, Kohlbeck, & Warfield (2004) investigate the initial adoption of SFAS 142 and find that a net benefit is associated with the new accounting regulation for goodwill. They document a significant increase in value relevance of goodwill and earnings figures, in terms of ability to explain stock prices, after including the transitional impairment charges and first year impairment amounts in financial statement figures in comparison to leaving them out of the valuation. The study also addresses benefits

associated with increased timeliness of impairment recognition under SFAS 142 and concerns about management incentives. The results show that adoption impairment charges were already incorporated into market valuations prior to SFAS 142. This demonstrates that SFAS has cleaned up the balance sheet shifting it closer to fair value. The first year impairments are mainly providing new information to the market, however the market had already incorporated some part earlier, indicating flaws in the application framework or the implementation by management.

Beatty & Weber (2006) examine the accounting discretion offered to firms when the accounting regulations for goodwill changed under SFAS 142. They look at the influence of economic incentives on the choice to recognize goodwill charges below the line as the effect from a change in accounting regulation or to recognize it above the line in later periods. They show that CEO tenure, debt contracting, bonus concerns and exchange delisting incentives do influence the decision to accelerate or delay impairment.

Other studies consider the concern that accounting practices diverge even when firms do apply the same accounting standards. Swanson, Singer, & Downs (2007) examine impairment decisions under SFAS 142 for US firms and non-US firms listed on a US secondary market and reporting under US standards from a firm-level and country-level (location and regime) perspective. The study finds that both firm and country characteristics do influence accounting for goodwill. In particular Swanson, et al. (2007) find that non-US firms take more impairments than US firms. Suggesting that non-US firms interpret and apply accounting standards in a different manner than US firms. Furthermore, they find that code law countries are more likely to take impairments than common law countries are (in contrast to prior findings). Lastly, they look at firm level characteristics and confirm other studies' findings that firms with a higher proportion of intangible to total assets are more likely to take impairments.

Van de Poel, Maijoor, & Vanstraelen (2009) study the differences in goodwill impairment taking under IFRS 3 across European countries and find that occurrence of goodwill impairments is influenced by economic incentives and is not uniform across countries and auditors. They show that high quality judicial systems are more

conservative and that firms employing a BIG 4 auditor have higher constraints on using goodwill impairment as an earnings management tool. This study suggests that differences in judicial systems and audit quality strain de fact accounting harmonization in Europe and thus the benefits of IFRS 3. Altogether, the empirical evidence indicates that the goodwill impairment only approach as prescribed under IFRS 3 is superior to the systematic amortization approach but that duly implementation may be violated by incentives and managerial discretion, compliance issues as well as firm level differences or in a broader sense by national and institutional differences across countries.

Numerous studies, particularly in the US, deal with the association between stock prices (returns) and accounting numbers for purchased goodwill (goodwill amortization) generally employing a simplified version of Ohlson's (1995) model (price model) and the related return model. Wang (1993) applied Landsman (1986) equity valuation model to examine the amortization period for goodwill. His study provided evidence that attempts to shorten the amortization period of goodwill from presently 40 years may cause reported (capitalized) goodwill to be significantly understated. Amir *et al.* (1993) conducted several studies to determine if reconciliation of accounting data to US GAAP increases the value relevance of accounting measures of goodwill. They found that this was the case. Chauvin and Hirschey (1994) examined the association between firm value, goodwill and profitability. They concluded that reported goodwill in the financial statements was useful in measuring the market value of the company, since goodwill had a positive and significant effect on the market value of the firm.

Muller (1995) analyzed the association of brand names, publishing titles and goodwill with firm value for UK firms that capitalized separately identifiable intangible assets. Muller concluded that reported amounts for goodwill provided investors with value-relevant information about UK companies.

McCarthy and Schneider (1995) applied a levels approach and included book value and earnings as independent variables in their regressions. They concluded that goodwill was valued at least as much as other assets, indicating that goodwill was perceived as value relevant by investors. Barth and Clinch (1996) explored the effects of international accounting differences and their relation to share prices and returns

for different components including goodwill. They found that stock prices of UK firms act as if goodwill was an asset, but at a discount relative to other assets. Further, they found that goodwill amortization under U.S., U.K., and Australian GAAP was “too small” relative to the expense reflected in returns.

Huijgen (1996) analyzed investors’ perception of goodwill for companies listed on the Amsterdam Stock Exchange. His results indicated that investors perceived goodwill as an asset with a long economic lifetime. However, the findings were not conclusive as to the (exact) amortization period. Indeed, for several specifications he found that goodwill amortization had an unexpected sign.

A paper by Henning and Stock (1997) investigated the value relevance of goodwill write-offs. They decomposed goodwill write-off into three different types. “Market goodwill” that relates to intangible assets valued by the market, “hubris goodwill” that relates to amounts paid by the acquiring firm that the market does not value as assets, and finally “tax-related goodwill”, which are amounts paid by the purchasing firm to acquire a target company’s operating loss carry forwards and other tax attributes. They concluded that the value relevance of these write-offs depends on the underlying source of the asset written-off. Market goodwill write-offs results in significant stock price declines, write-offs of hubris goodwill results in insignificant stock price changes, and write-offs of tax-related goodwill result in stock price increases. This implies that overpayment (hubris goodwill) is not valued by investors. Wilkins *et al.* (1998) studied the market valuation of goodwill and other intangible assets. They found a significant positive relation between security prices and goodwill.

Henning *et al.* (2000) tested whether different components of goodwill are valued differently. They further examined if periodic amortization captures the market’s perception of the change in value of goodwill. Their findings suggested that the goodwill components are valued by the market except for amounts allocated to goodwill that are in excess of the net increase in market value to the parties. They found no significant relation between returns and the going-concern or synergy components.

In a recent working paper by Jennings *et al.* (2001) they examined the value relevance of goodwill amortization. They consistently found that  $R^2$  for the model excluding goodwill amortization from earnings is higher than for the model including goodwill amortization in earnings. Thus, their findings strongly suggested that earnings before goodwill amortization was more useful than reported earnings as a summary indicator of share values.

Overall, the review of the empirical studies conducted in recent years strongly suggest that there is a significant and positive relationship between reported goodwill numbers and market values, that is, goodwill is perceived as value relevant by investors. The findings concerning the (proper) amortization period, however, are inconsistent, and it is unclear whether investors perceive the periodic amortization expense (goodwill amortization) as value relevant.

Barth and Clinch (1998) studied how different types of revalued assets, including intangible assets, are correlated with stock prices. Using a sample of 350 Australian companies over the period 1991-1995. The authors noted that the revaluation of intangible assets is relevant. They suggest that this result indicates that despite the potential for managers to use their discretionary powers available under the CCP Australia to promote their own interests, the private information they hold improves the valuation of companies from the investors. In the same context, Godfrey and Koh (2001) tested the value relevance of reported goodwill, capitalized R&D, and other identifiable intangibles for a sample of 172 companies selected from the top 500 Australian companies in 1999. The results of this study indicate that, taken as a group, intangible assets are value relevant over and above the other information contained in financial statements. When intangible assets are disaggregated into goodwill, capitalised R&D and identifiable intangible assets, Godfrey and Koh (2001) find that both goodwill and identifiable intangible assets are value relevant, but not capitalized R&D. Further, investors appeared to attach greater value to goodwill than to other balance sheet items, including identifiable intangible assets.

Kiyamaz *et al.* (2008) conducted an event study on the U.S. market to the announcement of 188 goodwill Impairment between 2001 and 2003, these impairments have been made in accordance with the U.S. GAAP (FASB 142,

"Goodwill and other intangible assets"). The results of the study have shown negative abnormal returns around these ads. However, this reaction varies depending on industry sectors studied. In the same context, Chen, Kohlbeck and Warfield (2004) studied the effect of the adoption of FASB 142 on a sample of 1918 company and they found an improvement in the value relevance of goodwill impairment. However, Bens and Heltzer (2004) made a similar study on the period from 1996 to 2003 and find that the adoption of SFAS 142 did not improve the information content of goodwill impairments.

Wines and Ferguson (1993) investigated the accounting treatment adopted for both goodwill and identifiable intangible assets for 150 listed companies over the period 1985 to 1989. Following this study, the authors found evidence to suggest that Australian companies were increasingly recording identifiable intangible assets in takeover situations (presumably to reduce the amount of goodwill reported) and electing not to amortize those identifiable intangible assets (presumably to overcome the impact on reported profits of the requirement to systematically amortize goodwill over a maximum period of 20 years). Bugeja and Gallery (2006) analyzed the economic relevance of goodwill acquired for a sample of 136 companies listed on the Australian market between 1995 and 1999. The empirical results suggest that the recent acquisitions of goodwill have informational content unlike older acquisitions that show no future economic benefit.

Horton and Serafeim (2008) measured the market reaction to the publication of the documents necessary transitional requirements in IFRS 1 (2005) and the adequacy of the information contained in financial statements. In this order, the authors selected a sample of companies listed on the London FTSE350 at December 31, 2006 and find that adjustments for goodwill impairment, share-based payments, employee benefits, financial instruments and deferred taxes successively are value relevance. However, only the goodwill impairment and deferred taxes contain new information led to a strong correlation with abnormal returns.

Lapointe-Antunes, Cormier and Magnan (2009) studied the value relevance of goodwill losses recorded by the Canadian companies following the adoption of the Canadian standard N°30629 in 2002. The study results indicate a negative

relationship between the reported losses and the share price which reflects the integration of information relating to these losses by investors in the capital market. On the other hand, the authors find that investors perceive the existence of effective audit committees reduce the opportunities for discretion on the part of managers, which means that investors give more credibility to the amount of the loss recorded. Finally, the results of this study suggest that the fair value accounting may be relevant to market valuation even if the amount discovered may contain measurement errors and to be the result of the exercise of a margin maneuvering by managers.

Chalmers et al. (2009) compared the association between the investment opportunity for companies and goodwill amortization applied before the adoption of IFRS, or impairment of goodwill in accordance with the rules dictated by IFRS. They selected two samples of companies listed on the Australian market (Australian Securities Exchange, ASX) for the periods (200-2001) and (2006-2007). The authors find that the goodwill impairment has an inverse correlation with the investment opportunity. On the other hand, no correlation was found between the goodwill amortization and growth opportunity. This indicates that the system of goodwill depreciation reflects the best attributes of the underlying economic goodwill.

On the French market, Cazavan-Jeny (2003) reviewed the value relevance of goodwill and the correlation between measures of intangible intensity and Market to Book ratio of 63 companies over the period 1994 to 1999. The results reveal that only the reported goodwill has a positive and significant relation with the ratio of Market to Book. It thus appears that unlike the individual intangible assets, the accounting measure of goodwill is relevant information for investors. In an other study, Feuilloley Sentis (2006) tested the economic relevance of goodwill impairment by measuring the reaction of French market to the announcement of 75 goodwill impairment over the period 2000-2004. The empirical results show that these impairments cause a significant negative impact on firm value, confirming the economic effect of this accounting entry.

Hung and Subramanyam (2007) regress stock prices on the book value of equity and earnings. They find no difference in value relevance, but IFRS numbers appear to have relatively higher coefficients for the book value of equity and lower for earnings.



On the other hand, Bartov et al. (2005) use a return model specification and find a higher earnings coefficient for IFRS firms. A problem here is that past switches to IFRS have been voluntary and hence results can be influenced by a self-selection bias (Soderstrom and Sun, 2007). When trying to control for this, Barth et al. (2008) find a higher accounting quality for IFRS adopters than a matched sample of firms applying local GAAP.

Soderstrom and Sun (2007) also make the point that an increased value relevance is not necessarily the point with the IFRS adoption as other stakeholders might have different ideas of what quality is and even investors might measure quality differently. In their review of the area Soderstrom and Sun (2007) argue that cross-country differences in accounting quality are likely to remain as they are not only dependent on accounting standards, but also legal, political and governance factors. It is only in a very long perspective that such differences may vanish.

Although a switch to the impairment-only approach of IFRS 3 has an effect on the balance sheet, making equity more reliant on relevant but unspecified intangible assets, the primary short-term effect is on accounting earnings. With the abandonment of goodwill amortizations, earnings become irregularly affected by individual write-downs; hopefully of a more timely character than past amortizations. Not everyone agrees with this though. Using data from the years prior to the adoption of SFAS 141/142 Hayn and Hughes (2006) find that giving discretion to managers makes goodwill impairments come too late. This could indicate that an overly liberal accounting system substitutes an overly conservative counterpart. Few studies have been able to address the relevance of goodwill charges. Both Jennings et al. (2001) and Churyk and Chewning (2003) make use of limited U.S. samples. They both conclude that amortizations appear irrelevant to investors. None of these studies deal with the relative value relevance of amortizations and impairments, or the relative value relevance of an impairment-only system to a system with both amortizations and impairments.

Prior studies have consistently found a positive association between firm value and goodwill in both the U.S. (see for example Jennings, Robinson, Thompson and Duvall, 1996) and Australia (see Barth & Clinch, 1996; Godfrey & Koh, 2001).

However, Jennings *et al.* (1996) and Henning, Lewis and Shaw (2000) suggest that investors are likely to attach different valuation weights on various components of the total goodwill asset amount, including differentiation in the value relevance of goodwill of different 'ages'. That is, goodwill may be strongly associated with expected future benefits in the period the acquisition is recorded, but is likely to diminish rapidly thereafter (Jennings *et al.*, 1996). Although Jennings *et al.* (1996) find no significant differential effect between values attached to recently acquired goodwill and 'older' goodwill.

Prior value relevance studies have consistently found that goodwill is priced as an asset by investors. In one of the earliest studies, Chauvin and Hirschey (1994) find consistently positive associations between goodwill and firm value, although this relationship holds only for firms in the manufacturing sector. The positive relationship between goodwill and firm value is further corroborated in subsequent studies by McCarthy and Schneider (1995) and Jennings, Robinson, Thompson and Duvall (1996). Hirschey and Richardson (2002) adopt an event-study approach, rather than a balance sheet model, to examine the relationship between goodwill write-offs and firm value as an alternative test of the information content of accounting goodwill numbers. They find evidence of negative valuation effects tied to goodwill write-off announcements, consistent with market participants viewing goodwill as representing economic value.

Johnson and Petrone (1998) argue that given the method for calculating purchased goodwill, it can be disaggregated into various components. These components include: the difference between the fair value of the acquirer's assets (including unrecognized assets) and their book value, synergistic benefits of the acquisition, the acquirer's internally generated goodwill and overpayment by the bidder.

Henning, Lewis and Shaw (2000) use the Johnson and Petrone (1998) framework to investigate whether investors attach different valuation weights to the various components of goodwill; they find a significant positive association between market values and the going concern and synergy components of goodwill, and a negative relationship with the overpayment/overvaluation component.

A relationship between the goodwill asset and firm value has also been found in the context of research investigating the effects of differences in international accounting methods. In a study of the value relevance of the reconciliation between US GAAP and non-US GAAP earnings and shareholders equity provided on Form 20-F, Amir, Harris and Venuti (1993) find that the reconciling item for goodwill is positively associated with a firms' market-to-book ratio, consistent with investors regarding goodwill as an asset.<sup>3</sup> In their study of the value relevance of disclosures reconciling goodwill to US GAAP for non-US firms, Barth and Clinch (1996) find the disclosures for UK firms are value relevant, even though goodwill is disclosed in the notes, rather than recognized. The value relevance of the recognized goodwill asset has also been found in the context of studies focusing on associations between all intangible assets and firm value (see Godfrey and Koh, 2001; Shahwan, 2004).

McCarthy and Schneider (1995) analyze the market perception of goodwill as an asset in the determination of the US firm's valuation for the period 1988 to 1992. The results indicate a positive and significant relationship between reported goodwill and firm market value. Moreover, the results indicate that goodwill has coefficient values greater than those of other assets in all years. Therefore the results suggest that the market perceives goodwill as an asset and incorporates the information in valuation of a firm. Jennings et al. (1996) examine how goodwill asset and expense numbers relate to market-determined equity values of US firms for the period 1982 to 1988. The results indicate a strong positive cross-sectional association between equity values and recorded goodwill asset amounts, after controlling for other components of net assets. Moreover, the results show a negative association between equity values and goodwill amortization, after controlling for other components of expected earnings.

Morehrle et al. (2001) assess the relative information content of earnings before amortization, traditional accounting earnings, and operating cash flows of US firms for the period 1988 to 1998. They find that the relative information of earnings before amortization and earnings before extraordinary items do not differ significantly, and also find that both earnings before amortization and earnings before extraordinary items are more informative than cash flow from operations.

Nagata (2002) investigates the market perception of goodwill as an asset and the association between equity values and goodwill amortization of Japanese firms for the period 1997 to 1999. The results show that the market perceives goodwill as an asset and therefore as incremental information of firm value. Moreover, the results show a negative association between equity values and goodwill amortization, so earnings before amortization are more relevant than earnings after amortization.

Nishiumi (2002) examines the market reaction of a capital market to goodwill and negative goodwill of Japanese firms for the period 1997 to 2001 (goodwill) and for the period 2000 to 2001 (negative goodwill). The results show that the market perceives goodwill as an asset, but it does not perceive negative goodwill as a liability.

Nishiumi (2003) examines the association between equity values and goodwill amortization of Japanese firms for the period 1997 to 1998 and for the period 2000 to 2001. The results indicate that the relative information of earnings before amortization and earnings before extraordinary items do not differ significantly.

Godfrey and Koh (2001) tested the value relevance of reported goodwill, capitalized R&D, and other identifiable intangibles for a sample of 172 firms selected from the top 500 Australian companies for the year 1999. The results presented by Godfrey and Koh (2001) indicate that, taken as a group, intangible assets are value relevant over and above the other information contained in financial statements. When intangible assets are disaggregated into goodwill, capitalized R&D and identifiable intangible assets, Godfrey and Koh (2001) find that both goodwill and identifiable intangible assets are value relevant, but not capitalized R&D.

The results provided by Godfrey and Koh (2001) with respect to goodwill and identifiable intangible assets were subsequently supported by Shahwan (2004) who examined a larger sample of 993 companies for a four-year period from 1997 to 2000. Shahwan (2004) also found a positive and significant relationship between the market value of equity and both goodwill and identifiable intangible assets; with the goodwill variable having the highest coefficient in Shahwan's (2004) asset-based pricing model.

There is some research that finds that goodwill loses value-relevance as it ages. Jennings et al.'s study of goodwill (1996) in the USA during 1982–86 finds evidence that goodwill is viewed by investors as a wasting asset, though not necessarily for all firms. Bugeja and Gallery's Australian study (2006) of goodwill purchased between 1995 and 1999 reports strong evidence that goodwill purchased in the observation year and in the previous two years is positively associated with firm value, but that goodwill acquired before that is not so associated. They explain this as possibly due to the benefits of goodwill being quickly consumed or their being incorporated into the firm's ongoing performance and therefore captured by current income. For the UK Li and Meeks (2006) study goodwill reported during the years 1997–2002 and provide some evidence that goodwill acquired in years prior to the reporting year is value-relevant but is generally less so than the reporting year's new goodwill.

Since IFRS 3 only came into effect for business agreements from March 31, 2004, most of the research on the effects of the impairment-only approach is based on the consequences of the implementation of SFAS 142 in the U.S. There are a number of studies on SFAS 142 suggesting that the "impairment-only" approach has improved the quality of reported information on goodwill and intangible assets (Hayn and Hughes 2005; Chen et al. 2004; Churyk 2004; Li et al. 2004).

Hayn and Hughes (2005) investigate whether investors are able to assess the value of goodwill based on available financial reporting before and after the adoption of SFAS 142. They use a sample of U.S. companies that made acquisitions between 1988 and 1998. They track their sample companies' goodwill disclosures through to 2004 and find that the implementation of SFAS 142 has improved investors' ability to predict goodwill write-offs considerably. However, their results also suggest there is a time lag between when the impairment occurred and actual recognition of the impairment losses, and consequently, there is a lag between investors' ability to predict impairment and the timing of the economic deterioration of the goodwill asset.

Chen et al. (2004) examine the effects on timeliness by decomposing impairment charges among U.S. companies into adoption impairments and subsequent impairments and to test the timeliness of these charges. If the goodwill accounting under amortization plans provides the market with sufficient information, then the

adoption impairment charges are already impounded into stock prices and are basically a catch-up adjustment, while subsequent impairment charges are predicted to provide the market with new and relevant information. They find that the adoption impairment charges are partially providing the market with new information and that there is an increase in the value relevance of accounting information associated with the adoption of SFAS 142 (Chen et al. 2004). Similarly, Churyk (2005) tests the value relevance of the goodwill impairment charges made subsequent to the adoption of SFAS 142 and finds a strong increase in value relevance of reported goodwill.

Li et al. (2004) assess how the market responds to reported impairment charges by measuring the association between analysts' forecast revisions around the announcements of impairments charges. They find that the SFAS 142 adoption improved the reported information on goodwill and intangible assets to investors. In particular, they found that announcements of goodwill impairments provide investors with useful information about the firm's future prospects.

In sum, previous research regarding the SFAS 142 implementation suggests that the amortization of goodwill does not adequately capture its economic value and that the switch over to the impairment-only approach improves the quality of the accounting information on goodwill. Based on the above, we predict that the adoption of IFRS 3 and the abandonment of goodwill amortizations will increase the value relevance of companies financial reporting with proportionally high intangible assets.

In relation to goodwill in the balance sheet, Jennings et al (1996) analysed US data for 1982-8 and found that goodwill was value-relevant, though its impact on value was smaller than that of tangible assets. And Chauvin and Hirschey's (1994) study of US firms in 1989-91 found that goodwill made some contribution to equity value.

In relation to amortization, Jennings et al (2001) studied the value relevance of earnings before and after amortization and found that amortization "simply adds noise" and "eliminating goodwill amortization from the computation of net income will not reduce its usefulness to investors". And Moehrle et al (2001) concluded that income with or without amortization provides similar value relevance when related to market returns.

Suggestive evidence on the impact of a formal impairment system comes from studies of goodwill write-offs on market valuations in the period before the US regulators established formal procedures of impairment in SFAS 142. For 1989-92, Francis et al (1996) found practically no market response to the goodwill write-off decision when other types of write-off were included. On the other hand, in Hirshey and Richardson's (2002) study for 1992-6, the market responded negatively to goodwill write-offs, with most of the negative response preceding the announcement (see section 10 below). An early study of the first effects of SFAS 142 (Chen et al(2004)) also concluded that the standard generated new information, but again that it was not timely information.

Some studies relate to the literature interested in the information content and value relevance of goodwill and goodwill-impairment losses following the adoption of SFAS 142 in the United States. Segal (2003) and Zang (2003) find that the market does not significantly react to the expected portion of transitional goodwill-impairment losses, but document a negative reaction to the unexpected portion. Chen, Kohlbeck, and Warfield (2004) an increase in the value relevance of goodwill following the adoption of SFAS 142. In contrast, Bens and Heltzer (2004) find that SFAS 142 does not improve the information content of goodwill-impairment losses.

## Sample description and Methodology

In this chapter we will examine the research methods of previous researches. As a result, we decide about our sample and our regression models that we will use in our survey whose results will be presented to the next chapter of our work.

All researches that we discussed are using model or regression models in order to study their hypotheses and reach their results.

Kevin Li and Geoff Meeks (2006) examines the impact on stock prices of firms' decision to impair purchased goodwill. In this paper they test for value relevance of impairment for the world's third largest equity and second largest takeover market – the London Stock Exchange. The sample (402 firms) contains non-financial firms listed on the London Stock Exchange which were involved as acquirers in mergers and acquisitions in the period 1997-2002. The approach of this study is: different components of the financial statements related to goodwill are separated from the book value of assets and the earnings figure in the regression model:

$$\mathbf{MV}_{it} = \mathbf{a}_{it} + \mathbf{b}_1\mathbf{BV}_{it} + \mathbf{b}_2\mathbf{GW}_{it} + \mathbf{b}_3\mathbf{Impair}_{it} + \mathbf{b}_4\mathbf{Cum\_GW}_{it} + \mathbf{b}_5\mathbf{Cum\_Amort}_{it} + \mathbf{b}_6\mathbf{E}_{it} + \mathbf{b}_7\mathbf{Amort}_{it} + \mathbf{e}_{it} \quad (1)$$

$\mathbf{MV}_{it}$  = The market value of common stock measured 5 months after the year-end for firm  $i$  in yr  $t$ .

$\mathbf{BV}_{it}$  = Net book assets excluding goodwill acquired in current year, accumulated goodwill, accumulated goodwill amortization and current year goodwill amortization and impairment for firm  $i$  in yr  $t$ .

$\mathbf{GW}_{it}$  = Goodwill acquired in current year for firm  $i$  in yr  $t$ .

$\mathbf{Cum\_GW}_{it}$  = Accumulated goodwill from previous years and adjustment made to it for firm  $i$  in yr  $t$ .

$\mathbf{Cum\_Amort}_{it}$  = Accumulated goodwill amortization from previous year and adjustment made to it for firm  $i$  in yr  $t$ .

$\mathbf{E}_{it}$  = Earnings excluding current year goodwill amortization and impairment figure for firm  $i$  in yr  $t$ .



$Amort_{it}$  = Total current year amortization for firm  $i$  in yr  $t$ .

$Impair_{it}$  = Current year goodwill impairment by firm  $i$ .

$a, b$  = Regression coefficients

$e$  = Error term

Net book value (BV) is expected to have a positive coefficient. If goodwill could lead to an abnormal profit, then the coefficient on new goodwill purchased during the year (GW) should also be positive and significant. The coefficient on Cum\_GW should similarly be positive and significant if past years' accumulations of goodwill still provide useful information to the stock market. The coefficient for goodwill impairment should be negative if this newly released information is deemed credible by the market. It is often argued that the coefficient on the amortization and accumulated amortization variables are not expected to be significant: on this view, the markets view goodwill amortization as process conveying no fresh information.

The book value variable, BV (excluding goodwill), takes on the expected positive sign and is statistically significant in every year. The results also show that the earnings variable (E) performs somewhat less consistently, though it is, as expected, positive - and statistically significant - in every estimate except the 1999 cross-section.

GW, the goodwill acquired in the current year, is positive in every estimate – significantly so in every case but 2001. The market appears then to assign positive value to recently acquired goodwill. The annual estimates are volatile, however.

Accumulated goodwill (Cum GW), acquired in previous years, appears from the regression results generally to be value relevant, although it is accorded a less powerful role than GW, the component of goodwill acquired most recently. The results for 1997, and to some extent 1998, should be discounted because of the small number of companies which capitalised purchased goodwill: capitalisation only became compulsory at the end of 1997, and, since current year's goodwill is excluded from Cum GW in the regression, only assumed a wide role in 1999. Nevertheless, its influence in the regressions is weaker than for current goodwill, and this is reflected in several features – marginally less strong statistical significance in most cases.

Amortization of goodwill offers little information about market prices of company stock. As a result, the variables Amort ( current year's amortization) and Cum\_Amort (accumulated past amortization) are not expected to be value relevant. The results of the regression are consistent with this hypothesis. The coefficients are mostly not statistical significant and they are volatile.

#### **A variant model based on the income statement**

For comparability they estimate a version of their model, extended to incorporate the goodwill impairment which appears in the current year's income statement:

$$MV_{it} = a_{it} + b_1E_{it} + b_2Amort_{it} + b_3Impair_{it} + e_{it} \quad (2)$$

$MV_{it}$  = The market value of common stock measured 5 months after the year-end for firm i in yr t

$E_{it}$  = Earnings excluding current year goodwill amortization and impairment for firm i in yr t.

$Amort_{it}$  = Total current year amortization for firm i in yr t.

$Impair_{it}$  = Current year goodwill impairment by firm i.

a,b = Regression coefficients

e = Error term

The coefficient on earnings is statistically significant. Also, the amortization variable (Amort) is not statistically significant. Impairment, however, again demonstrates its value relevance.

#### **An event study of goodwill impairment**

The impact of goodwill impairment was further explored through an event study, estimating the cumulative abnormal returns (CAR) accruing to firms in periods when they impaired their purchased goodwill:

$$CAR = \sum AR_t$$

Where

CAR = cumulative abnormal returns

AR = daily abnormal returns

t is an estimation day

x is the first day of the event period

y is the last day of the event period

and they study event periods ranging from 3 to 55 days

And

$$AR_t = \sum u_{it} / n$$

Where

i is a company

n is the number of companies in the study

And

$$u_{it} = r_{it} - r_{it}$$

where  $r_{it}$  is the actual shareholder return (share price appreciation plus dividend)

and  $r_{it}$  is the expected shareholder return

$$\text{Model of expected returns. : } r_{it} = a + b r_{mt}$$

where

$r_{mt}$  is the return from the FTSE All Share Index on day t

a,b are regression coefficients, from estimating  $r_{it} = a_i + b_i r_{mt} + e_{it}$

where e is the stochastic disturbance term

and the regression is estimated for the one year preceding the event period.

For this part of the analysis, the sample comprises those members of the UK non-financial listed company sector outlined earlier, which reported a single negative goodwill impairment in the period 1997-2002, and had a clear announcement date not confounded by other major events. This sample consists of 87 companies.

Taking the results together, then, and focusing on the 5 days up to and including the announcement of impairment, the impact for the full sample is negative and statistically significant. The bigger is goodwill, in relation to total assets, the greater the impairment, and the less the earlier leakage of information, the stronger is the impact on market values.

Finally, the market valuation of book assets and of earnings closely resembles the findings of earlier work. And they confirm previous findings that goodwill is value relevant in the year of purchase, but its value relevance decays in subsequent years. Amortization is not value relevant – supporting earlier work and the basic theoretical contention that a semi-strong efficient market will not ascribe any value to information which a skilled analyst could recreate from published sources.

They find that impairment is, by contrast with amortization, value relevant – a result supported (with varying degrees of statistical significance) by the two valuation models and the event study. The economic impact implied by the range of estimates from very different methodologies is broadly consistent across the very different methodologies. It is also consistent with a valuation model in which the market largely believes and adopts the revised valuations supplied by the firm.

Jenny Barksjö and Mari Paananen (2006) examine the effects of the implementation of the “impairment – only” approach to goodwill accounting introduced by IFRS 3 in Sweden in 2005 on the accounting quality of financial reporting in Sweden. Using accounting data from companies traded on the Stockholm Stock Exchange, they test the value relevance of accounting information. They compare the value relevance of the accounting information between the years 2004 and 2005 to investigate the effects of the switch to the “impairment-only” approach. In addition, they also examine the effects of the impairment charges subsequent to the adoption of IFRS 3 (measured as return). Since all publicly traded Swedish firms switched to IFRS at one point in time, this presents a unique opportunity to investigate the effects of the implementation of the “impairment-only” approach.

IFRS is a set of accounting standards developed to create high quality financial reporting to guide, first, actors on the world’s capital markets and, second, other users to make economic decisions (IASB 2004). Hence, IFRS places a greater emphasis on fair values as compared to historical costs than traditional Swedish GAAP. They , therefore, predict that the switch to IFRS in Sweden will improve the quality of accounting information, measured as the association between share prices and accounting information (Hypothesis 1). Based on previous researches, Jenny Barksjö and Mari Paananen predict that the adoption of IFRS 3 and the abandonment of

goodwill amortizations will increase the value relevance of companies financial reporting with proportionally high intangible assets. Hypothesis 2: Swedish companies with substantial intangible assets will experience an increased value relevance of accounting measures after the adoption of IFRS 3. Hypothesis 3: The increase in value relevance of accounting measures after the adoption of IFRS 3 experienced by Swedish companies is driven by the reported intangible assets item and amortizations and impairment charges.

### ***Test of the Value Relevance of Accounting Measures***

Following previous research, they use a levels valuation model used in a stream of research showing that both book value of equity and earnings are factors explaining market value of equity (Barth et al. 2005; Chen et al. (2004); Lang et al. 2003; Ohlson 1995; etc.). In their base model share price is regressed on book value of equity per share and net income per share.

$$P_{it} = \beta_0 + \beta_1 E_{it} + \beta_2 BVE_{it} + \varepsilon_{it} \quad (1)$$

where  $P_{it}$  is the price of a share of firm  $i$  three months after the end of year  $t$ ,  $E_{it}$  is the net earnings before extra ordinary items per share for firm  $i$  in year  $t$ ,  $BVE_{it}$  is the book value of equity per share for firm  $i$  in year  $t$ , and  $\varepsilon_{it}$  is the other value-relevant information of firm  $i$  in year  $t$ . The model is applied to years 2004 and 2005 respectively, i.e., prior to the adoption of IFRS and after the adoption of IFRS.

Second, they re-specify the base model and separate the amortizations and impairment charges from earnings and intangible assets from the book value of equity in order to test the second hypothesis that companies with relatively high intangible assets experience an increased value relevance of accounting measures after the adoption of IFRS 3. The reason for using amortizations and impairment charges is that many companies collapse these items into one in their financial reporting. Also, they use intangible assets as a proxy for goodwill because some Swedish companies do not specify intangible assets item by item in their financial reporting.

$$P_{it} = \beta_0 + \beta_1 (E - AI)_{it} + \beta_2 AI_{it} + \beta_3 (BVE_{it} - IA_{it}) + \beta_4 IA_{it} + \varepsilon_{it} \quad (2)$$

where book value of equity and earnings are as previously defined,  $AI_{it}$  is the amortization and impairment charges made by firm  $i$  in year  $t$ , and  $IA_{it}$  is the book value of intangible assets per share for firm  $i$  in year  $t$ .

Third, they test the third hypothesis that the incremental explanatory power of intangible assets has increased between 2004 and 2005. They also estimate two models each for the two periods prior and after the adoption of IFRS. Model (3) and (4) disentangle the incremental value relevance of amortizations and impairment charges

$$P_{it} = \beta_0 + \beta_1 (E - AI)_{it} + \beta_2 AI_{it} + \beta_3 (BVE_{it} - IA_{it}) + \beta_4 IA_{it} + \varepsilon_{it} \quad (3)$$

$$P_{it} = \beta_0 + \beta_1 (E - AI)_{it} + \beta_3 (BVE_{it} - IA_{it}) + \beta_4 IA_{it} + \varepsilon_{it} \quad (4)$$

$$P_{it} = \beta_0 + \beta_1 (E - AI)_{it} + \beta_2 AI_{it} + \beta_3 (BVE_{it} - IA_{it}) + \beta_4 IA_{it} + \varepsilon_{it} \quad (5)$$

$$P_{it} = \beta_0 + \beta_1 (E - AI)_{it} + \beta_2 AI_{it} + \beta_3 (BVE_{it} - IA_{it}) + \varepsilon_{it} \quad (6)$$

They collect data on all Swedish firms listed on Swedish stock exchanges for the period 2004 – 2005. The total sample consists of 287 firms. Especially, they collect data on earnings per share, book value of equity per share, intangible assets scaled per share for the years 2004 and 2005. For model (1) the results of the OLS regression show that hypothesis 1 is supported.  $R^2$  for 2004 is smaller than  $R^2$  for 2005. All variables in the model are statistically significant except for the book value of equity (excluding intangible assets) in both the 2004 and the 2005 estimation, the amortizations and impairment charges in 2005, and intangible assets variable in 2005. However, it appears that the magnitude of the impact of earnings has increased considerably. On the other hand, the importance of amortizations and impairment charges, measured as the magnitude of the coefficients between the periods, seems to have decreased.

The results of the OLS regressions of net profit (E) and book value of equity (BVE), and intangible assets on share price using the high goodwill subset show that the adjusted  $R^2$  for 2004 is smaller than the  $R^2$  for 2005. All variables in the model are statistically significant. Moreover, the previously observed difference in the magnitude of the impact of earnings does not remain. Before the adoption of IFRS, the earnings excluding the amortization and impairment charges coefficient is 8.567, compared to the earnings coefficient after the adoption of 6.980. However, when using the sample with firms with a high proportion of goodwill the magnitude of the coefficient increased from 10.788 to 14.358. Thus, hypothesis 2 is supported.

Both amortizations and impairments, and the intangible assets appear to have an incremental explanatory power except for intangible assets in 2005. The explanatory power increases if intangible assets are excluded from the regression model. However, the difference is marginal and not statistically significant. The assessment of the comparisons of the  $R^2$ s for the different models reveals no statistical significant difference using the whole sample. Thus, it appears that the incremental explanatory power of amortizations and impairment charges and intangible assets has not significantly changed subsequent to the switch to IFRS. They also conducted the same test on the sub-sample with a high- proportion of goodwill to total assets. As shown, both amortizations and impairments and intangible assets appear to have an incremental explanatory power, the explanatory power increases in both 2004 and 2005 if these variables are included in the models. However, the difference in the incremental explanatory power is not statistically significant for either amortizations and impairments or the intangible assets, thus, hypothesis 3 is not supported.

Finally, they find no evidence of an over all increase in the value relevance of the accounting measures between 2004 and 2005 for Swedish listed companies included in the sample. However, they do find a significant increase in the association between share prices and accounting information for companies with substantial intangible assets. Although the results must be interpreted with caution due to the limited sample size. That is, the explanatory power of accounting measures of companies with substantial intangible assets increased significantly between 2004 and 2005. However, when investigating the incremental effect of intangible assets explanatory power on

share prices they found that the incremental effect of amortizations and impairment charges and intangible assets were not statistically significant.

Martin Bugeja and Natalie Gallery (2006) examine whether the value relevance of purchased goodwill holds as it ages in the Australian context. They especially examine whether the market attaches different values to components of recognized goodwill when it is disaggregated into different ages. They find that firm value is positively associated with goodwill purchased in the observation year and in each of the prior two years, but not with goodwill acquired more than two years previously. Their findings suggest that only recently acquired goodwill is associated with the market value of equity, which indicates that the market perceives ‘older’ goodwill as not having future economic benefits

Using ASX Findata, sample firms were selected on the basis of whether their goodwill increased in any year between 1995 and 1999; that is, the firm purchased goodwill in at least one year. This process yielded a total of 136 companies with goodwill acquisitions in one or more years between 1995 and 1999. Value-relevance studies examine “the association between a security price-based dependent variable and a set of accounting variables”; if an accounting number is significantly related to the dependent variable, then it is regarded as value relevant. Value relevance studies currently employ an accounting-based valuation model developed in Ohlson (1995) and its later refinements (Barth, *et al.*, 2001). The model is operationalised in (1) with market value of equity as a summary measure of information relevant to investors, and book value of equity and net income as summary measures of information reflected in financial statement accounting numbers.

$$MVE_{i,t} = \alpha_0 + \alpha_1 BVE_{i,t} + \alpha_2 NI_{i,t} + \varepsilon_{i,t} \quad (1)$$

MVE is the share price of firm  $i$  three months after year-end reporting date  $t$ , BVE is the book value of firm  $i$  net assets at year-end reporting date  $t$ , and NI is net income of firm  $i$  for year  $t$ . In model (2) they test whether total intangible assets are value relevant.



$$MVE_{i,t} = \alpha_0 + \alpha_1 BVE_{i,t} + \alpha_2 NI_{i,t} + \alpha_3 TIA_{i,t} + \varepsilon_{i,t} \quad (2)$$

BVExIA is book value of equity excluding intangible assets and TIA is total intangible assets at year end reporting date  $t$  for firm  $i$ . TIA is then further partitioned in Model (3) into the components of total net goodwill (GWT) and identifiable intangible assets (IIA).

$$MVE_{i,t} = \alpha_0 + \alpha_1 BVE_{i,t} + \alpha_2 NI_{i,t} + \alpha_3 IIA_{i,t} + \alpha_4 GWT_{i,t} + \varepsilon_{i,t} \quad (3)$$

They further explore whether the market values of recently acquired goodwill differ from goodwill acquired in prior years by partitioning GWT into the components of goodwill acquired in the current year ( $GWA_0$ ) and the two prior years ( $GWA_{-1}$  and  $GWA_{-2}$ ), and the balance of goodwill for each year excluding acquisitions ( $GWTxA_0$ ,  $GWTxA_{0-1}$  and  $GWTxA_{0-2}$ ). These components of goodwill are incorporated into the following three regression equations:

$$MVE_{i,t} = \alpha_0 + \alpha_1 BVE_{i,t} + \alpha_2 NI_{i,t} + \alpha_3 IIA_{i,t} + \alpha_4 GWA_{0,t} + \alpha_5 GWTxA_{0,t} + \varepsilon_{i,t} \quad (4)$$

$$MVE_{i,t} = \alpha_0 + \alpha_1 BVE_{i,t} + \alpha_2 NI_{i,t} + \alpha_3 IIA_{i,t} + \alpha_4 GWA_{0,t} + \alpha_5 GWA_{-1,t} + \alpha_6 GWTxA_{0-1,t} + \varepsilon_{i,t} \quad (5)$$

$$MVE_{i,t} = \alpha_0 + \alpha_1 BVE_{i,t} + \alpha_2 NI_{i,t} + \alpha_3 IIA_{i,t} + \alpha_4 GWA_{0,t} + \alpha_5 GWA_{-1,t} + \alpha_6 GWA_{-2,t} + \alpha_7 GWTxA_{0-2,t} + \varepsilon_{i,t} \quad (6)$$

In regression (4), net goodwill is decomposed into goodwill acquired in the current year and the remaining balance of goodwill. Regression (5) disaggregates this remaining balance of goodwill between goodwill acquired in the prior year and goodwill acquired two or more years earlier. In regression (6) the remaining balance of goodwill is further disaggregated into goodwill acquired two years earlier and goodwill acquired three or more years previously. Each component of goodwill is measured as the gross goodwill at acquisition less an estimated amount of amortised goodwill. Estimation of amortised goodwill is based on the disclosed amount of amortisation expense for each year and the average goodwill amortisation period, which is inferred from the proportion of amortisation expense to total goodwill reported by the firm during the period of observation.

Regression model (1) tests the value relevance of financial statement accounting numbers captured by the book value of net assets (BVE) and net income (NI); the results show both variables are highly significant. In model (2) total intangible assets (TIA) are separated out from net assets, to test whether intangible assets in total are value relevant. The coefficient for TIA is positive and significant, indicating that intangible assets reported in financial reports are relevant to market participants. In regression model (3) total intangible assets are partitioned between net total goodwill (GWT) and identifiable intangible assets (IIA). The results show that while total goodwill is strongly positively related with firm value the association with identifiable intangible assets is not significant. The insignificant results for IIA is not surprising given that 47% of the firm-year observations have zero amounts for IIA and the amounts of IIA in the non-zero firm-years are on average relatively small.

In models (4), (5) and (6) total goodwill is partitioned into goodwill acquired in the observation year ( $GWA_0$ ), goodwill acquired in the prior year ( $GWA_{-1}$ ) and goodwill acquired two years earlier ( $GWA_{-2}$ ), with  $GWTxA_n$  representing the balance of goodwill after the purchased goodwill for the respective years is deducted in each of the models. The results for model (4) show that both goodwill acquired in the observation year ( $GWA_0$ ) and the balance of goodwill ( $GWTxA_0$ ), that is, the aggregate of goodwill acquired in prior years, are positively and significantly associated with firm value. Similarly, model (5) test results show the coefficients for goodwill acquired in the observation year, goodwill acquired in the prior year and the balance of goodwill (i.e., acquired more than one year previously) are all positive and significant. Test results for model (6), however, show that while the coefficients for goodwill acquired in the current and each of the prior two years ( $GWA_0$ ,  $GWA_{-1}$  and  $GWA_{-2}$ ), are positive and significant, the coefficient for the balance of goodwill ( $GWTxA_{0-2}$ ) is not significant. This result suggests that only goodwill acquired within the most recent two years is considered an asset by investors, and goodwill purchased more than two years previously is not relevant in the valuation of firm equity.

The results also indicate that the value relevance of acquired goodwill increases from the acquisition year to one year after the acquisition, and then decreases in the second year after acquisition and then is no longer value relevant three years after the acquisition. One possible explanation for this pattern of value relevance is that over

time the benefits of the acquisition are increasingly reflected in the normal operations of the firm so that these benefits are reflected in net income and not the balance of goodwill included in the regression models. An alternative explanation is that there is usually uncertainty as to whether corporate acquisitions will result in benefits (e.g., synergies) to the acquiring firm. It is likely that the benefits (or lack thereof) from an acquisition will take a number of years to be revealed to the market. In addition, the results are consistent with the market becoming increasingly confident in the first two accounting periods after the acquisition that the balance of acquired goodwill represents future economic benefits. However, by the third year after the acquisition the market perceives that the future economic benefits embodied in goodwill are diminishing or are less likely to eventuate. Then by the following year, the market assesses that the balance of goodwill no longer represents future economic benefits. This interpretation of the results suggests that the economic benefits of goodwill are either consumed rapidly or that the market takes approximately three years to realize that the balance of goodwill will not result in economic benefits.

The possibility that goodwill does not represent economic benefits is consistent with corporate acquisitions not achieving operational improvements for the combined firm. Finally, goodwill acquired in the observation year and each of the prior two years is positively associated with firm value, but there is no significant association with goodwill acquired more than two years previously. The absence of a significant relationship between the market value of equity and goodwill acquired more than two years previously suggests that older goodwill is not considered to be an asset by investors. One possible explanation for this result is that the purchase price paid in corporate acquisitions does not represent unidentified future economic benefits, or that any benefits purchased are quickly consumed. Such an explanation is consistent with prior Australian research that finds no improvements in post-takeover performance of acquiring firms. Alternatively, the results may reflect that the benefits of acquisitions are quickly incorporated into the normal performance of the firm and hence are captured by the net income variable in the regression model.

In Japan, goodwill is treated as an asset, but does the market perceive goodwill to the same degree it perceives other assets? In order to clarify this question the paper of Noriaki Yamaji and Jun'ichi Miki (2009) first analyzes the market perception of

goodwill as an asset in the determination of a firm's valuation. If the amortization method is adopted, goodwill is systematically amortized in Japan. In order to evaluate the effect of goodwill amortization on the usefulness of earnings, this paper secondly evaluates the value relevance of earnings before goodwill amortization and earnings after goodwill amortization.

First, in order to investigate the value relevance of goodwill, the bookvalue model that modified the Ohlson (1995) Model is utilized (Model 1). This model considers the association between stockprice (P), goodwill (Xa), earnings (Xb), and net assets (book value of equity) excluding goodwill (Xc), where the independent variables are considered on a per share basis using adjusted outstanding stocks and adjusted stock prices at the time prices are measured. Since the dependent variable (P) is assumed to follow a normal distribution, it is transformed to a natural logarithm.

$$\ln P = \alpha + \beta X_a + \gamma X_b + \delta X_c + u \quad (\text{Model 1})$$

Where,

P: stockprice per share

Xa : goodwill per share

Xb : earnings per share

Xc : net assets (excluding goodwill) per share

$\alpha, \beta, \gamma, \delta$  : parameter

u: error terms

Second, in order to investigate the value relevance of goodwill amortization, the earnings capitalization model (Model 2 and Model 3), as in Jennings et al. (2000) is utilized.

$$\ln P = \lambda + \mu X_b + u \quad (\text{Model 2})$$

$$\ln P = \nu + \zeta X_d + u \quad (\text{Model 3})$$

Where,

P : stockprice per share

Xb : earnings per share

Xd : earnings per share before goodwill amortization

$\lambda, \mu, \nu, \zeta$  : parameter

u: error terms

Finally, in order to provide evidence as to whether goodwill amortization has any incremental information beyond that contained in earnings before goodwill amortization, the model for incremental analysis (Model 4) is utilized.

$$\ln P = \alpha + \pi Xd + \rho Xe + u \quad (\text{Model 4})$$

Where,

P: stockprice per share

Xd : earnings per share before goodwill amortization

Xe : goodwill amortization

$\alpha, \pi, \rho$ : parameter

u: error terms

The sample includes all companies listed on the Tokyo Stock Exchange with 12-month fiscal years ending on March 31st between 1999 and 2009 for the bookvalue model, and between 2000 and 2009 for the earnings capitalization model. But non-industrial companies (e.g. financial and insurance companies), companies that adopt US-GAAP, companies that don't disclose goodwill, and companies with negative book value of equity are excluded. The definite sample size is 3.837 for the book value model and 2.286 for the earnings capitalization model. The standardized partial regression coefficients are positively significant and the largest one was Xc (net assets), followed in order by Xb (earnings), and Xa (goodwill). The coefficients of Xa (goodwill) are significantly positive. Therefore, the results suggest that the market perceives goodwill as an incremental factor in valuing a firm. The coefficients ( $\mu$  and  $\zeta$ ) on both Xb (earnings) and Xd (earnings before goodwill amortization) are significant at the 1% level. The explanatory power of model 3 (38.7%) is greater than that of model 2 (36.5%). Therefore, the results suggest that earnings before

amortization are more relevant than earnings after amortization. The results of model 4 suggest that the coefficient ( $\rho$ ) on  $X_e$  (goodwill amortization) is positive and significant at the 1% level. These results suggest that goodwill amortization contains incremental information that is useful for assessing share prices. Therefore, the presence of positive goodwill amortization has a positive relationship with stock prices. This implies that investors might consider the presence of goodwill amortization as representing a positive factor in valuing a firm's value.

Mattias Hamberg and Leif-Atle Beisland (2009) wanted to test the effect of the implementation of IFRS3 on accounting information's ability to explain stock returns. They made three main predictions : (1) that the implementation of IFRS makes accounting information more value relevant, (2) that goodwill amortizations were essentially value irrelevant to investors, and (3) that the switch from Swedish GAAP to IFRS meant that the incremental value relevance of goodwill accounting increases. Following the work of Easton and Harris (1991) a return model is often used by value relevance researchers (Francis and Schipper, 1999; Lev and Zarowin; 1999; Beisland and Hamberg, 2009). According to this, changes in the market value of equity arise because of the level of and change in net earnings.

$$RET = Earn + \Delta Earn \quad (1)$$

The summary earnings measure is decomposable with the help of items in the income statement. For example, Aboody and Lev (1998) use the return model specification and extract R&D expenditures from reported earnings. Similarly, Lev and Zarowin (1999) decompose earnings into a cash flow and an accrual component. In a similar vein, it is possible to extract goodwill reductions (GWred) from reported earnings:

$$Earn = (Earn - GWred) - GWred \quad (2)$$

Under Swedish GAAP these goodwill reductions consisted of two components; goodwill amortizations (GWamo) and goodwill impairments (GWimp):

$$GWred = GWamo + GWimp \quad (3)$$

Inserting equation (3) into equation (2), and combining this with equation (1) yields:

$$RET = (Earn - GWred) + GWamo + GWimp + \Delta(Earn - GWred) + \Delta GWamo + \Delta GWimp \quad (4)$$

Equation (4) is the starting point for the empirical tests. They use data from the Stockholm Stock Exchange (SSE) in the years 2001 to 2007. In addition to these seven years, they also use the 2004 IFRS restatement figures. This means that we have four years when firms report in accordance to Swedish GAAP (i.e., 2001 to 2004), and four years when firms report in accordance with IFRS (i.e., 2004 to 2007). They exclude all firms that have no goodwill in the end of year  $t$ , or have not reported any amortizations and/or impairments of goodwill in year  $t$ . Real estate and pure investment firms are excluded as they only have assets of a financial character.

The number of listed firms has decreased over time and, to a lesser extent, so has the absolute number of firms with capitalized goodwill, 787 firms under Swedish GAAP and 727 firms under IFRS. The value relevance of accounting earnings is substantially lower in the years after the IFRS adoption, indicating that the value relevance of earnings decreased. The value relevance of goodwill impairments is substantially different between the Swedish GAAP and the IFRS time periods on two accounts. The first is that it is highly statistically significant in the Swedish GAAP period and not at all so in the IFRS period. The magnitude of the coefficient is also much greater in the Swedish GAAP period. Second, the incremental value relevance is much higher in the Swedish GAAP period than in the IFRS period. They speculate in the reasons for this difference. One plausible idea is that investors viewed goodwill impairments in the past as better indicators, because they were made on top of the standard amortizations. A second plausible idea is that goodwill impairments are seen as less value relevant in good times and hence the observed difference is nothing but an effect of an omitted relevant economic variable such as e.g. the business climate and/or market sentiments. Furthermore, the value relevance of accounting earnings is substantially lower in the years after the IFRS adoption, indicating that the value relevance of earnings decreased. Also they showed that in good times accounting is less able to explain returns and price levels, relative to bad times.

Pascale Lapointe-Antunes, Denis Cormier, Michel Magnan (2009) wanted to test for the value relevance of transitional goodwill-impairment losses by examining the relationship between equity market values and transitional goodwill-impairment losses. To the extent that investors perceive transitional goodwill-impairment losses as being sufficiently reliable measurements of a reduction in the value of goodwill to

incorporate them in their valuation assessments, we expect a negative association between market value and transitional goodwill-impairment losses. Consistent with this prediction, they find a significant negative relationship between reported transitional goodwill-impairment losses and share price.

Next, we explore the effect of increases in perceived reliability on the value relevance of transitional goodwill-impairment losses by altering the valuation model in two ways. First, we distinguish firms that record a transitional goodwill-impairment loss when financial information at the firm level indicates that they should. They find that investors put a higher valuation weight on impairment losses recorded by firms with market value of equity lower than book value, i.e., firms that are expected to record a loss. Second, given the low percentage of firms that disclose changes in the carrying amount of goodwill for each reporting unit or segment (28%) and the crucial nature of that information for investors to be able to estimate the fair value of goodwill at the reporting unit level, they distinguish between firms that disclose this information and firms that do not. They do not find any evidence of investors putting a higher valuation weight on transitional goodwill-impairment losses reported by firms that disclose the reporting unit allocation of goodwill. Sample firms are drawn from the January 2004 version of Compustat, which lists 1620 Canadian firms. To enter the sample, firms must be listed on the Toronto Stock Exchange (TSX), have a positive goodwill balance at the end of the year preceding the adoption of Section 3062, and report in Canadian GAAP. The final sample is 324 firms. Building on the work of Collins, Pincus, and Xie (1999), who model market value as a function of book value and earnings, they use the following ordinary least squares regression model to assess the value relevance of transitional goodwill-impairment losses recorded in the adoption year:

$$MVAL_i = a_0 + a_1BV_i + a_2NI_i + a_3GWILL_i + a_4TGIL_i + e_i \quad (1)$$

Where:

MVAL      Market value of equity at the end of the year in which the transitional goodwill impairment test is completed.

BV          Book value of equity at the end of the year in which the transitional



Goodwill-impairment test is completed minus goodwill at the end of that same year.

NI Earnings before extraordinary items for the year in which the transitional goodwill-impairment test is completed.

GWILL Goodwill at the end of the year in which the transitional goodwill-impairment test is completed plus the reported transitional goodwill-impairment loss.

TGIL Reported transitional goodwill-impairment loss.

The valuation model is altered to separate goodwill and transitional goodwill impairment losses from book value of equity. They expect book value per share and earnings per share to be positively related to price. The ending balance of goodwill is adjusted to exclude the effect of reported transitional goodwill-impairment losses. They also expect a positive association between goodwill per share and price. If investors perceive transitional goodwill-impairment losses as a reduction in the value of goodwill, then TGIL will be negatively related to price.

Next, they explore the effect of perceived increases in reliability on the value relevance of transitional goodwill-impairment losses. They examine whether the set of information available to try and assess the fair value of goodwill influences the value relevance of transitional goodwill-impairment losses. From an investor's point of view, the potential for measurement error and managerial discretion with respect to reported transitional goodwill impairment losses could be exacerbated in the absence of detailed public information at the reporting-unit level and footnote disclosures on the method(s) and inputs used to assess the fair value of reporting units, net assets, and goodwill because they do not have sufficient information to assess the reasonableness of reported transitional goodwill-impairment losses. Thus, the set of information available to estimate the fair value of goodwill and the magnitude of the transitional goodwill-impairment loss could influence the perceived reliability, and value relevance, of reported transitional goodwill-impairment losses.

To estimate the fair value of goodwill and the anticipated transitional goodwill impairment loss, specialized valuation firms suggest that investors rely on financial information at the firm level. The firm is treated as a single reporting unit, as though it has been purchased in a business combination. The market value of equity is assumed

to proxy for the fair value of the reporting unit. The fair value of net assets is assumed to be equal to their book value. The goodwill-impairment test can then be simplified to the difference between the market value and the book value of stockholders' equity. Consistent with this approach, they create an indicator variable called EXPECT. EXPECT takes on the value of one if the market value of equity is lower than book value and a transitional goodwill-impairment loss is reported; or the market value of equity is higher than book value and no transitional goodwill-impairment loss is reported) and zero otherwise. They then build an interaction term between TGIL and EXPECT and include it in the valuation model. If the perceived reliability of transitional goodwill-impairment losses increases when the reported loss is consistent with available accounting and market information, then TGIL\*EXPECT will be negatively associated with price. This yields the following model:

$$\mathbf{MVAL}_i = \mathbf{b}_0 + \mathbf{b}_1\mathbf{BV}_i + \mathbf{b}_2\mathbf{NI}_i + \mathbf{b}_3\mathbf{GWILL}_i + \mathbf{b}_4\mathbf{TGIL}_i + \mathbf{b}_5\mathbf{TGIL*EXPECT}_i + \mathbf{e}_i \quad (2)$$

Alternatively, investors could try to estimate the fair value of goodwill at the reporting unit level by relying on the information disclosed in the financial statements. To reduce information asymmetry between firms and investors, SFAS 142/Section 3062 requires that firms disclose the changes in the carrying amount of goodwill for each reporting unit or segment during the period. Yet, only 28% of sample firms actually disclose that information. They create an indicator variable called RUNIT that takes on the value of one if the firm discloses the reporting unit allocation and zero otherwise, and build an interaction term between TGIL and RUNIT. If the perceived reliability of transitional goodwill-impairment losses increases when the firm discloses the changes in the carrying amount of goodwill for each reporting unit or segment, then TGIL\*RUNIT will be negatively associated with price. The model is as follows:

$$\mathbf{MVAL}_i = \mathbf{\gamma}_0 + \mathbf{\gamma}_1\mathbf{BV}_i + \mathbf{\gamma}_2\mathbf{NI}_i + \mathbf{\gamma}_3\mathbf{GWILL}_i + \mathbf{\gamma}_4\mathbf{TGIL}_i + \mathbf{\gamma}_5\mathbf{TGIL*RUNIT}_i + \mathbf{e}_i \quad (3)$$

Consistent with their predictions, book value per share (BV) and earnings per share (NI) are positively associated with share price and the association is significant. There is a positive and significant association between pre-impairment goodwill per share (GWILL) and share price and a negative and significant association between transitional goodwill-impairment losses per share (TGIL) and share price. This suggests that investors perceive transitional goodwill impairment losses as being a sufficiently reliable measure of a reduction in the value of goodwill to incorporate them in their valuation assessments. The results of the OLS model distinguish between firms that behave as expected and firms that do not. The model is significant with an  $R^2$  of 64.82%. Consistent with the predictions, BV, NI, and GWILL are significantly and positively associated with share price. TGIL and TGIL\*EXPECT are negatively associated with share price and the association is significant. This result is consistent with investors using the information on firm-wide goodwill that is publicly available to form an expectation of whether a goodwill-impairment loss should be reported. It also indicates investors perceive the reported transitional goodwill-impairment loss as more reliable when the firm's reporting behavior is consistent with that information.

The results of the OLS model (3) are distinguished for firms that disclose the reporting unit allocation of goodwill and the changes in the carrying amount of goodwill for each reporting-unit or segment during the adoption year. The model is significant with an  $R^2$  of 64.90%. Consistent with the predictions, BV, NI, and GWILL are significantly and positively associated with share price. TGIL and TGIL\*RUNIT are negatively associated with share price. However, only the association between TGIL and share price is significant, indicating that investors do not put a different valuation weight on transitional goodwill-impairment losses reported by firms that disclose the reporting-unit allocation of goodwill and the changes in the carrying amount of goodwill for each reporting unit or segment during the adoption year. Overall, this suggests that the information disclosed on goodwill has little effect on investors' valuation assessments. It is perhaps due to the fact that few firms actually disclose the reporting-unit allocation of goodwill.

Our results show a negative association between transitional goodwill-impairment losses per share and share price. This suggests that investors perceive transitional goodwill impairment losses as being a sufficiently reliable measure of a reduction in the value of goodwill to incorporate them in their valuation assessments. In addition, they find that perceived increases in reliability lead to an increase in the value relevance of transitional goodwill-impairment losses. More specifically, they showed that investors use the information available at the firm level to form an expectation of whether a loss should be reported and perceive the reported transitional goodwill-impairment loss as more reliable when the firm's reporting behavior is consistent with that information.

## Our research (Valuation model and data)

### Population and data

The evidence in this study relates to the population of non-financial firms listed on the London Stock Exchange, Euronext Paris and Frankfurt Index which were involved as acquirers in mergers and acquisitions in the period 1997-2007. Basic accounting data were collected from Datastream; but these had to be augmented by manual extraction from the financial reports of detailed data on goodwill. We collected from Thomson One Banker the biggest 100 acquisitions from UK, Germany and France. These acquisition were held by 76 firms but the maximum number of firms which completed acquisitions in the 10-year period and met the data requirements is 47 firms. We continue to examine the firms until 2010 in order to collect more observations for the impairment variable. The dependent variable is the closing share price three months after balance date.

The firms of our sample are :

**United Kingdom** : WPP Group PLC , SCOTTISH & SOUTHERN, Bae Systems, Taylor Woodrow PLC , GlaxoSmithKline, National Grid, First Group PLC, Vodafone PLC , Imperial Tobacco Group PLC , Pearson PLC , Shire Pharmaceuticals Grp PLC, British American Tobacco PLC , Enterprise Inn PLC , Invencys, Smiths Industries PLC , Yell Group, ITV ,Virgin Media, Premier Foods PLC , Barratt Developments PLC , Punch Taverns PLC , CORUS GROUP PLC

**France** : Sanofi-Synthelabo SA , Lafarge SA, Unibail Holding SA, VINCI SA , Carrefour SA, Alcatel SA , Cap Gemini SA, France Telecom SA, Vivendi SA , GDF SUEZ

**Germany** : BASF AG, Bayer AG, Schneider Electric SA, Daimler, Siemens AG, Continental AG, E.ON AG, Deutsche Post, Deutsche Telecom, RWE AG, Adidas AG, Fresenius Medical Care AG & Co, Merck KGaA ,LINDE AG, Thyssen AG



## The valuation model

Value-relevance studies examine “the association between a security price-based dependent variable and a set of accounting variables”. If an accounting number is significantly related to the dependent variable, then it is regarded as value relevant. A large body of literature has examined the relation between market values of equity and accounting numbers. If we accept that an examination of the association between equity values and accounting numbers can provide an indication of the relevance and reliability of reported information then, in order to undertake such an examination, we require a model that has three features.

First, it must facilitate a methodologically rigorous analysis of firm value. Second, it must use accounting information. Third; it must allow an assessment of both the relevance and reliability of reported information. The Ohlson model presents a model that we believe has the potential to satisfy each of these conditions. This model shows that the market value of a firm can be written as a function of the book values of equity and earnings.

Several studies (e.g. Barth et al (1998)) separate the book value and earnings explanatory variables into several components in order to test the value relevance of new variables and the influence these have on the overall relation. And that is the approach of this study: different components of the financial statements related to goodwill are separated from the book value of assets and the earnings figure in the regression model:

$$MV_{it} = a_{it} + b_1BVE_{it} + b_2GWLL_{it} + b_3Impair_{it} + b_4Cum\_GWLL_{it} + b_5Cum\_Amort_{it} + b_6NI_{it} + b_7Amort_{it} + e_{it} \quad (1)$$

$MV_{it}$  = The market value of common stock measured 3 months after the year-end for firm  $i$  in yr  $t$ .

$BVE_{it}$  = Common equity excluding goodwill acquired in current year, accumulated goodwill, accumulated goodwill amortization and current year goodwill amortization and impairment for firm  $i$  in yr  $t$ .

$GWLL_{it}$  = Goodwill acquired in current year for firm  $i$  in yr  $t$ .

$Cum\_GWLL_{it}$  = Accumulated goodwill from previous years and adjustment made to it for firm  $i$  in yr  $t$ .

$Cum\_Amort_{it}$  = Accumulated goodwill amortization from previous years and adjustment made to it for firm  $i$  in yr  $t$ .

$NI_{it}$  = Net income before extraordinary items for firm  $i$  in yr  $t$ .

$Amort_{it}$  = Total current year amortization for firm  $i$  in yr  $t$ .

$Impair_{it}$  = Current year goodwill impairment by firm  $i$ .

$a, b$  = Regression coefficients

$e$  = Error term

Firstly, we want to examine the value relevance of purchased goodwill. We find that the firm value is positively associated with goodwill purchased in the observation year but not with goodwill acquired more than two years previously. Only recently acquired goodwill is associated with the market value of equity with indicates the the market perceives “older goodwill” as not having future economic benefits. A possible explanation for this finding is that over time, the benefits of an acquisition are increasingly reflected in normal operations and therefore the value is captured in earnings, rather than the goodwill asset.

$H_1$  : Purchased goodwill is value-relevant in the year of acquisition, but it fades thereafter

Secondly , the impairment data represent the release of information not routinely available to the market. The impairment review requires executives and auditors to compare their current forward-looking assessments of the income-generating prospects of purchased goodwill with their earlier estimates. Impairment in the income statement reflects the change over the year in managers’ forecasts of earnings attributable to the intangible assets they purchased. And such forecasts were not previously published. In this respect, the impairment regime represents a qualitative change in disclosure so in contrast with amortization , these data might be value-relevant

We want to test  $H_2$  : Amortization is value-irrelevant and impairment is value-relevant.

Book value of Equity (BVE) is expected to have a positive coefficient. The coefficient on new goodwill purchased during the year (GWLL) should also be positive and significant. The coefficient on Cum\_GWLL should similarly be positive and significant if past years' accumulations of goodwill still provide useful information to the stock market. The coefficient for goodwill impairment should be negative if this newly released information is deemed credible by the market. It is often argued that the coefficient on the amortization and accumulated amortization variables are not expected to be significant: on this view, the markets view goodwill amortization as an arbitrary bookkeeping process conveying no fresh information.

Our data, which as we said we collect them from DataStream and hand collected from balance sheets, is organized in panel data in order to perform our regression. The method used for the performance of our regression is the method of least squares (OLS method).

We will examine separately each country because of the different currency and different characteristics of each country. We will also examine each country for three different periods ; 1997-2001, 2001-2004 and 2004-2010. We do this because the first period provide available evidence of the impact of the accounting technique of impairment for United Kingdom which has now come to dominate standards worldwide. The second period provide evidence for big a cycle of mergers and acquisitions and the third period provide evidence for the implementation of IFRS3.



## Results of our Research

In this chapter we will provide the results of our research and through them we will study the assumptions we made in our research.

### *Results for United Kingdom*

<b>DEPENDENT VARIABLE MARKET PRICE</b>	<b>1997-2010</b>	<b>1997-2001</b>	<b>2001-2004</b>	<b>2004-2010</b>
<b>NI</b>	0.029054 ***(7.658422)	0.010896*** (9.026716)	0.016078***(13.35903)	0.026879 ***(10.94562)
<b>IMPAIR</b>	-0.000277***(-5.647533)	-0.000529 (-0.651111)	-0.000170**(-2.322185)	-0.000177***(-10.32842)
<b>GWLL</b>	0.084411**(2.024428)	0.058378** (2.344255)	0.066987 (2.904569)	0.0898785 **(1.170554)
<b>CUM_GWLL</b>	0.000333 (0.105934)	0.00000174(1.330899)	0.000001.82 (0.774922)	0.00000180 (1.409585)
<b>CUM_AMORT</b>	0.0000124(0.021450)	$1.32 \cdot 10^{-8}$ (0.691450)	$1.48 \cdot 10^{-6}$ (0.127597)	$3.2 \cdot 10^{-6}$ (1.170554)
<b>BVE</b>	0.036245**(2.428500)	0.026878*** (5.317502)	0.015425 ***(-2.931870)	0.029571***(-10.17180)
<b>AMORT</b>	0.0000346(0.52480)	$2.83 \cdot 10^{-4}$ **(-2.674554)	$2.50 \cdot 10^{-6}$ (0.013629)	$6.69 \cdot 10^{-4}$ (0.152589)

*The coefficients of the variables are the numbers outside the parentheses. Also \*, \*\* and \*\*\* represent significance at 10%, 5% and 1% respectively. In parentheses are t-statistics. The same applies to all tables that follow. More detailed results of the regressions that we had given in the annexed tables (appendix) at the end of our work.*

The book value of equity variable, BVE (excluding goodwill), takes on the expected positive sign and is statistically significant in period of the panel. The earnings variable (E) is, as expected, positive and statistically significant in every estimate. Of the further components of book value analyzed in model 1, GWLL, the goodwill acquired in the current year, is positive in every estimate and statistically significant.

The estimates follow a similar pattern to those obtained by Jennings et al (1996) and McCarthy and Schneider (1995). The market appears then to assign positive value to recently acquired goodwill. In addition Accumulated goodwill (Cum GWLL), acquired in previous years, appears from the regression results generally to be value irrelevant which means that only recently acquired goodwill is associated with the market value of equity which indicates that market perceives older goodwill as not having future economic benefits.

The variables Amort (current year's amortization) and Cum\_Amort (accumulated past amortization) are not expected to be value-relevant. And the results are largely consistent with this view. The coefficients are mostly not statistically significant. The option given by the standard setters to impair their purchased goodwill was exercised most frequently in 2002. The impairment variable is statistically significant with negative coefficient. This result could be explained with the fact that one pound of impairment translates into somewhat more than one pound of decline in market value might be because impairment carries bad news about future earnings generally, beyond that for the value of goodwill; or, possibly, it is a symptom of market over-reaction to bad news (De Bondt and Thaler(1985), Dissanaik (1997)). Our two hypothesis are supported.

### *Results for Germany*

<b>DEPENDENT VARIABLE MARKET PRICE</b>	<b>1997-2010</b>	<b>1997-2001</b>	<b>2001-2004</b>	<b>2004-2010</b>
<b>NI</b>	0.044469 *(3.978807)	0.061325*** (4.125562)	0.073126(1.025049)	0.068796*(1.692326)
<b>IMPAIR</b>	-0.000000343 (-0.854417)	-6.98*10 <sup>-7</sup> (-0.852188)	-2.73*10 <sup>-6</sup> (-0.249671)	-9.49*10 <sup>-8</sup> (-0.017480)
<b>GWLL</b>	0.021871*** (2.448592)	0.085766** (2.076232)	0.064789*** (3.707107)	0.088216*** (3.506314)
<b>CUM_GWLL</b>	1.61*10 <sup>-7</sup> (1.382330)	3.12*10 <sup>-7</sup> (0.181426)	1.20*10 <sup>-7</sup> (1.625486)	4.71*10 <sup>-7</sup> (1.559777)
<b>CUM_AMORT</b>	1.47*10 <sup>-6</sup> (1.172430)	4.92*10 <sup>-7</sup> (0.091998)	2.11*10 <sup>-7</sup> (0.183887)	1.64*10 <sup>-6</sup> (0.608769)
<b>BVE</b>	0.075890 *(1.743564)	0.023068** (2.207143)	0.052931 * ** (2.931870)	0.058478*** (2.219431)
<b>AMORT</b>	1.09*10 <sup>-6</sup> (0.253570)	0.004638(1.496064)	0.003587(0.741807)	0.001745(0.964738)

As in UK, the first hypothesis is supported. Goodwill is positive and statistical significant in each period whereas Accumulative goodwill is not statistical significant. Also, the book value of equity variable, BVE (excluding goodwill), takes on the expected positive sign and is statistically significant in period of the panel. The earnings variable (E) is, as expected, positive and statistically significant in every estimate. However the second hypothesis is not supported. Amortization is not value relevant and impairment, too. This means that impairment test did not offer new information to investors.

### *Results for France*

<b>DEPENDENT VARIABLE MARKET PRICE</b>	<b>1997-2010</b>	<b>1997-2001</b>	<b>2001-2004</b>	<b>2004-2010</b>
<b>NI</b>	0.044469 *(3.978807)	0.058821 *** (3.391154)	0.054321 ** (3.195181)	0.044185** (2.751211)
<b>IMPAIR</b>	-0.000000343 (-0.854417)	-2.41*10 <sup>-6</sup> (-0.068433)	-4.95*10 <sup>-5</sup> (-1.043135)	-5.51*10 <sup>-6</sup> (-0.535559)
<b>GWLL</b>	0.021871*** (2.448592)	0.023425 ** (2.349088)	0.026034 *(1.921732)	0.029045*** (3.105527)
<b>CUM_GWLL</b>	1.61*10 <sup>-7</sup> (1.382330)	5.54*10 <sup>-5</sup> (0.169134)	1.77*10 <sup>-6</sup> (1.474829)	2.41*10 <sup>-6</sup> (0.751211)
<b>CUM_AMORT</b>	1.47*10 <sup>-6</sup> (1.172430)	3.32*10 <sup>-5</sup> (0.694168)	6.38*10 <sup>-6</sup> (0.808857)	1.48*10 <sup>-5</sup> (0.056487)
<b>BVE</b>	0.075890 *(1.743564)	0.065814 ** (2.207143)	0.082966* (1.815236)	0.094071** (2.651597)
<b>AMORT</b>	1.09*10 <sup>-6</sup> (0.253570)	1.56*10 <sup>-5</sup> (0.339873)	1.87*10 <sup>-5</sup> (1.142238)	1.09*10 <sup>-5</sup> (0.697339)

As in UK and Germany, the first hypothesis is supported. Goodwill is positive and statistical significant in each period whereas Accumulative goodwill is not statistical significant. This means that the benefits of an acquisition are increasingly reflected in normal operations and therefore the values is captured in earnings rather than the goodwill asset. If goodwill was regarded as an asset over its nominated useful life it would have been priced by the market for the period it was recognized. Also, the book value of equity variable, BVE (excluding goodwill), takes on the expected positive sign and is statistically significant in period of the panel. The earnings variable (E) is, as expected, positive and statistically significant in every estimate. However the

second hypothesis is not supported. Amortization is not value relevant and impairment, too. This means that impairment test did not offer new information to investors.

АНЕТИЧНО РЕПАА

## Conclusion

This study examines the impact of the accounting standards on purchased goodwill adopted by most jurisdictions from 2005. We examined 47 firms for the period 1997-2010 from UK, Germany and France. This period included a unique conjuncture of events: the introduction of a formal system of impairment with IFRS3; and two interconnected financial cycles: first, a pronounced cycle of M&A, and, second, exuberance in stock prices, followed by a major correction. This conjuncture produces early evidence on the effect of impairment in the accounts, for a period when, first, exceptional amounts of goodwill were being purchased and, then, the market revised sharply downwards its estimates of company values.

We estimate the value relevance of accounting variables resulting from different approaches to reporting goodwill, focusing on impairment, but comparing with amortization where possible. We use standard Ohlson-based valuation models combining asset and income regressors. With our results we confirm previous findings that goodwill is value relevant in the year of purchase, but its value relevance decays in subsequent years. Amortization is not value relevant – supporting earlier work and the basic theoretical contention that a semi-strong efficient market will not ascribe any value to information which a skilled analyst could recreate from published sources .

We find that impairment is, by contrast with amortization, value relevant only for United Kingdom. For Germany and France impairment was value irrelevant. However the Continental European Accounting tradition has been viewed as an accounting regime of a lower quality and companies listed in these countries display a relatively weaker association between accounting measures and value. The economic impact implied by the range of estimates from very different methodologies is broadly consistent across the very different methodologies. It is also consistent with a valuation model in which the market largely believes and adopts the revised valuations supplied by the firm.

There are researchers who have raised concern over the variety of in impairment test methods used across countries and companies might increase diversity instead of aiding, as intended by the International Accounting Standards Board (IASB), comparability. Moreover, these differences in impairment test methods are not always visible to investors since this information is provided in the notes to the annual reports. Therefore, these results might call for future research examining the variety and investor usefulness of in impairment test methods used under IFRS.

## APPENDIX

### United Kingdom

#### Results for the first valuation model: regression 1997-2010

Dependent Variable: SHARE

Method: Panel Least Squares

Date: 01/24/12 Time: 10:19

Sample: 1997 2010

Periods included: 14

Cross-sections included: 22

Total panel (unbalanced) observations: 275

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	2.90E-06	3.79E-07	7.658422	0.0000
IMPAIR	-4.77E-06	8.44E-07	-5.647533	0.0000
GWLL	8.84E-07	4.37E-07	2.024428	0.0467
CUM_GWLL	3.33E-08	3.15E-07	0.105934	0.9157
CUM_AMORT	1.24E-08	5.78E-07	0.021450	0.9829
BVE	3.61E-08	9.23E-08	2.428500	0.0169
AMORT	1.46E-06	1.86E-06	0.524810	0.6004
C	6.519899	0.688677	9.467279	0.0000
R-squared	0.494841	Mean dependent var		7.740178
Adjusted R-squared	0.473731	S.D. dependent var		11.21987
S.E. of regression	10.19879	Akaike info criterion		7.511074
Sum squared resid	27772.07	Schwarz criterion		7.616289
Log likelihood	-1024.773	Hannan-Quinn criter.		7.553300
F-statistic	9.230188	Durbin-Watson stat		0.413026
Prob(F-statistic)	0.000000			



## Results for the first valuation model: regression 1997-2001

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 10:20  
 Sample: 1997 2001  
 Periods included: 5  
 Cross-sections included: 19  
 Total panel (unbalanced) observations: 87

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	1.08E-05	1.20E-06	9.026716	0.0000
IMPAIR	-0.000529	0.000812	-0.651111	0.5169
GWLL	8.84E-07	4.37E-07	2.344255	0.0467
CUM_GWLL	1.74E-06	1.31E-06	1.330899	0.1871
CUM_AMORT	1.24E-08	5.78E-07	0.691450	0.9829
BVE	1.68E-06	3.17E-07	5.317502	0.0003
AMORT	2.83E-05	7.69E-06	2.674554	0.0356
C	4.398980	0.998251	4.406687	0.0000
R-squared	0.619290	Mean dependent var		7.983023
Adjusted R-squared	0.576695	S.D. dependent var		10.62977
S.E. of regression	7.689559	Akaike info criterion		7.005052
Sum squared resid	4671.216	Schwarz criterion		7.231802
Log likelihood	-296.7197	Hannan-Quinn criter.		7.096357
F-statistic	12.19144	Durbin-Watson stat		0.749337
Prob(F-statistic)	0.000000			

## Results for the first valuation model: regression 2001-2004

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 10:21  
 Sample: 2001 2004  
 Periods included: 4  
 Cross-sections included: 21  
 Total panel (unbalanced) observations: 79

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	1.04E-05	7.77E-07	13.35903	0.0000
IMPAIR	-1.70E-05	7.34E-06	-2.322185	0.0031
GWLL	6.69E-07	4.37E-07	2.904569	0.0467
CUM_GWLL	1.82E-06	5.79E-07	0.774492	0.8624
CUM_AMORT	1.48E-06	9.67E-07	0.127597	0.9551
BVE	1.51E-06	3.17E-07	2.931870	0.0000
AMORT	2.50E-06	2.24E-06	0.013629	0.1478
C	2.896108	0.936813	3.091448	0.0028
R-squared	0.764257	Mean dependent var		7.357430
Adjusted R-squared	0.741015	S.D. dependent var		13.01919
S.E. of regression	6.625545	Akaike info criterion		6.715506
Sum squared resid	3116.748	Schwarz criterion		6.955450
Log likelihood	-257.2625	Hannan-Quinn criter.		6.811635
F-statistic	32.88218	Durbin-Watson stat		0.781007
Prob(F-statistic)	0.000000			



## Results for the first valuation model: regression 2004-2010

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 10:21  
 Sample: 2004 2010  
 Periods included: 7  
 Cross-sections included: 22  
 Total panel (unbalanced) observations: 149

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	7.68E-06	7.02E-07	10.94562	0.0000
IMPAIR	-1.77E-05	1.71E-06	-10.32842	0.0000
GWLL	5.20E-09	4.35E-07	2.349088	0.0207
CUM_AMORT	3.21E-06	1.05E-06	1.170554	0.2504
CUM_GWLL	1.80E-06	5.24E-07	1.409585	0.1683
AMORT	6.69E-07	2.06E-07	0.152859	0.8795
BVE	2.95E-05	4.59E-06	10.17180	0.0000
C	5.872391	0.795288	7.383978	0.0000
R-squared	0.686075	Mean dependent var		7.760705
Adjusted R-squared	0.660561	S.D. dependent var		11.00843
S.E. of regression	8.085305	Akaike info criterion		7.070170
Sum squared resid	9217.475	Schwarz criterion		7.231455
Log likelihood	-518.7276	Hannan-Quinn criter.		7.135697
F-statistic	19.05129	Durbin-Watson stat		0.899762
Prob(F-statistic)	0.000000			

## Germany

### Results for the first valuation model: regression 1997-2010

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 11:13  
 Sample: 1997 2010  
 Periods included: 14  
 Cross-sections included: 15  
 Total panel (balanced) observations: 210

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	3.84E-06	1.04E-06	3.694158	0.0003
IMPAIR	-5.77E-07	4.20E-06	-0.137474	0.8908
GWLL	9.18E-07	3.48E-07	2.636563	0.0090
CUM_GWLL	1.61E-07	1.69E-07	0.952772	0.3418
CUM_AMORT	1.47E-06	9.64E-07	1.526087	0.1286
BVE	7.95E-07	2.23E-07	3.567469	0.0005
AMORT	1.09E-05	3.58E-06	0.253570	0.9226
C	27.88495	2.246560	12.41229	0.0000
R-squared	0.201252	Mean dependent var		33.70580
Adjusted R-squared	0.173573	S.D. dependent var		22.67784
S.E. of regression	20.61598	Akaike info criterion		8.927360
Sum squared resid	85853.74	Schwarz criterion		9.054869
Log likelihood	-929.3728	Hannan-Quinn criter.		8.978908
F-statistic	7.270832	Durbin-Watson stat		0.433542
Prob(F-statistic)	0.000000			

### Results for the first valuation model: regression 1997-2001

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 11:14  
 Sample: 1997 2001  
 Periods included: 5  
 Cross-sections included: 15  
 Total panel (balanced) observations: 75

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	6.13E-06	1.49E-06	4.125562	0.0001
IMPAIR	-6.98E-07	8.19E-07	-0.852188	0.3971
GWLL	8.57E-07	0.000131	2.076232	0.0417
CUM_GWLL	3.12E-07	1.72E-06	0.181426	0.8566
CUM_AMORT	4.92E-07	5.35E-06	0.091998	0.9270
BVE	2.30E-05	1.04E-05	2.207143	0.0307
AMORT	4.63E-07	3.09E-07	1.496064	0.1393
C	18.49818	2.795167	6.617916	0.0000
R-squared	0.499779	Mean dependent var		31.69321
Adjusted R-squared	0.447518	S.D. dependent var		21.84352
S.E. of regression	16.23610	Akaike info criterion		8.512890
Sum squared resid	17661.94	Schwarz criterion		8.760089
Log likelihood	-311.2334	Hannan-Quinn criter.		8.611594
F-statistic	9.562989	Durbin-Watson stat		0.569616
Prob(F-statistic)	0.000000			

### Results for the first valuation model: regression 2001-2004

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 11:15  
 Sample: 2001 2004  
 Periods included: 4  
 Cross-sections included: 15  
 Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	1.31E-06	1.27E-06	1.025049	0.3101
IMPAIR	-2.73E-06	1.09E-05	-0.249371	0.8041
GWLL	6.42E-07	3.82E-07	3.707107	0.0005
CUM_GWLL	1.20E-07	3.82E-07	1.625486	0.1101
CUM_AMORT	2.11E-07	1.15E-06	0.183887	0.8548
BVE	5.29E-07	1.80E-07	2.931870	0.0050
AMORT	3.25E-06	4.38E-06	0.741807	0.4615
C	18.91217	2.678539	7.060629	0.0000
R-squared	0.328002	Mean dependent var		25.38885
Adjusted R-squared	0.237541	S.D. dependent var		14.70094
S.E. of regression	12.83670	Akaike info criterion		8.066059
Sum squared resid	8568.605	Schwarz criterion		8.345305
Log likelihood	-233.9818	Hannan-Quinn criter.		8.175288
F-statistic	3.625883	Durbin-Watson stat		0.752029
Prob(F-statistic)	0.002956			

## Results for the first valuation model: regression 2004-2010

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 11:16  
 Sample: 2004 2010  
 Periods included: 7  
 Cross-sections included: 15  
 Total panel (balanced) observations: 105

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	2.87E-06	1.69E-06	1.692326	0.0938
IMPAIR	-9.49E-08	5.43E-06	-0.017480	0.9861
GWLL	1.88E-06	5.36E-07	3.506314	0.0007
CUM_GWLL	4.71E-07	3.02E-07	1.559777	0.1221
CUM_AMORT	1.64E-06	2.69E-06	0.608769	0.5441
BVE	2.84E-07	2.54E-07	2.219431	0.0007
AMORT	1.74E-05	1.80E-05	0.964738	0.3371
C	42.69613	3.982358	10.72132	0.0000
R-squared	0.210458	Mean dependent var		38.47279
Adjusted R-squared	0.153481	S.D. dependent var		24.13618
S.E. of regression	22.20685	Akaike info criterion		9.111810
Sum squared resid	47834.98	Schwarz criterion		9.314017
Log likelihood	-470.3700	Hannan-Quinn criter.		9.193748
F-statistic	3.693719	Durbin-Watson stat		0.533716
Prob(F-statistic)	0.001397			

## France

### Results for the first valuation model: regression 1997-2010

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 17:58  
 Sample: 1997 2010  
 Periods included: 14  
 Cross-sections included: 10  
 Total panel (balanced) observations: 140

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	1.44E-06	1.47E-06	3.978807	0.0655
IMPAIR	-3.43E-06	4.01E-06	-0.854417	0.3944
GWLL	1.05E-07	4.22E-07	2.448592	0.0041
CUM_GWLL	8.65E-07	6.26E-07	1.382330	0.1692
CUM_AMORT	2.15E-06	1.84E-06	1.172430	0.2431
BVE	8.40E-07	4.82E-07	1.743564	0.0836
AMORT	4.81E-06	7.11E-06	0.676558	0.4999
C	49.81597	4.765028	10.45450	0.0000
R-squared	0.058035	Mean dependent var		48.91371
Adjusted R-squared	0.008082	S.D. dependent var		37.93301
S.E. of regression	37.77941	Akaike info criterion		10.15685
Sum squared resid	188401.4	Schwarz criterion		10.32494
Log likelihood	-702.9795	Hannan-Quinn criter.		10.22516
F-statistic	1.161798	Durbin-Watson stat		0.478152
Prob(F-statistic)	0.329099			

### Results for the first valuation model: regression 1997-2001

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 18:03  
 Sample: 1997 2001  
 Periods included: 5  
 Cross-sections included: 10  
 Total panel (balanced) observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMPAIR	-2.41E-06	3.52E-05	-0.068433	0.9456
EARNINGS	5.88E-06	1.73E-06	3.391154	0.0010
AMORT	1.56E-05	6.68E-06	0.339873	0.2212
BVE	6.58E-07	2.71E-07	2.428500	0.0169
CUM_AMORT	1.32E-06	1.91E-06	0.694168	0.4892
CUM_GWLL	8.54E-07	3.94E-07	0.169134	0.3324
GWLL	1.34E-06	5.72E-07	2.349088	0.0207
C	12.74542	3.267382	3.900804	0.0002
R-squared	0.461783	Mean dependent var		35.26845
Adjusted R-squared	0.424846	S.D. dependent var		29.12287
S.E. of regression	22.08646	Akaike info criterion		9.097754
Sum squared resid	49756.80	Schwarz criterion		9.294152
Log likelihood	-492.3764	Hannan-Quinn criter.		9.177414
F-statistic	12.50209	Durbin-Watson stat		0.371800
Prob(F-statistic)	0.000000			

### Results for the first valuation model: regression 2001-2004

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 18:05  
 Sample: 2001 2004  
 Periods included: 4  
 Cross-sections included: 10  
 Total panel (balanced) observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMPAIR	-4.95E-05	4.74E-05	-1.043135	0.3047
EARNINGS	3.43E-06	2.87E-06	3.195181	0.0408
AMORT	1.87E-05	1.64E-05	1.142238	0.2618
BVE	8.22E-07	4.53E-07	1.815236	0.0789
CUM_AMORT	6.38E-06	7.89E-06	0.808856	0.4246
CUM_GWLL	1.77E-06	1.20E-06	1.474829	0.1500
GWLL	1.60E-06	8.33E-07	1.921732	0.0636
C	11.76956	6.812270	1.727700	0.0937
R-squared	0.309971	Mean dependent var		32.69758
Adjusted R-squared	0.159028	S.D. dependent var		25.29144
S.E. of regression	23.19340	Akaike info criterion		9.302469
Sum squared resid	17213.88	Schwarz criterion		9.640245
Log likelihood	-178.0494	Hannan-Quinn criter.		9.424598
F-statistic	2.053556	Durbin-Watson stat		0.356513
Prob(F-statistic)	0.078401			

### Results for the first valuation model: regression 2004-20010

Dependent Variable: SHARE  
 Method: Panel Least Squares  
 Date: 01/24/12 Time: 18:09  
 Sample: 2004 2010  
 Periods included: 7  
 Cross-sections included: 10  
 Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NI	2.41E-06	3.21E-06	2.751211	0.0062
IMPAIR	-5.51E-06	1.03E-05	-0.535559	0.5942
GWLL	1.90E-06	6.12E-07	3.105527	0.0029
CUM_GWLL	2.41E-06	3.21E-06	0.751211	0.4554
CUM_AMORT	1.48E-07	2.63E-06	0.056487	0.9551
BVE	1.40E-06	5.29E-07	2.651597	0.0102
AMORT	1.09E-05	1.56E-05	0.697399	0.4882
C	49.84690	7.038702	7.081831	0.0000
R-squared	0.427775	Mean dependent var		46.59854
Adjusted R-squared	0.390589	S.D. dependent var		37.74687
S.E. of regression	34.99302	Akaike info criterion		10.05538
Sum squared resid	75919.71	Schwarz criterion		10.31236
Log likelihood	-343.9385	Hannan-Quinn criter.		10.15746
F-statistic	2.612504	Durbin-Watson stat		0.340904
Prob(F-statistic)	0.019794			