Implementation of IFRS within Europe:

the case of goodwill

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Abstract

With the mandatory introduction of IFRS, the European Union attempts to improve financial reporting quality and comparability of European financial statements. In this paper, we examine empirically to what extent IFRS is used as an earnings management tool and whether it is implemented uniformly across auditors and countries. To this end, we focus on the case of goodwill, which is motivated by the concern raised by Ball (2006) that it seems doubtful that asset impairment tests are performed with the same degree of diligence by managers and auditors across countries. Using a sample of listed companies from 15 EU countries over the period 2005-2006, our results show that the occurrence of goodwill impairments is highly influenced by financial reporting incentives and is not uniform across auditors and institutional settings, while controlling for economic factors. In particular, our results show that companies strategically use IFRS in line with their financial reporting incentives. Further, we find an audit quality effect: Big 4 auditors put a higher constraint on the use of the goodwill impairment test as a tool to manage earnings. Finally, goodwill impairments appear to be strongly associated with the strength of the judicial setting consistent with the premise of previous research by Bushman and Piotroski (2006) that firms in countries with a high quality judicial system tend to be more conservative (i.e. take more impairments). Overall, these findings suggest that the benefits of introducing a single set of high-quality financial reporting standards may not be fully exploited in the presence of variation in audit quality and judicial settings.

Keywords: IFRS, goodwill impairments, earnings management, audit quality, judicial setting

Data availability: All data are publicly available

I. INTRODUCTION

Since 2005 all EU-listed firms are required to prepare their consolidated accounts under IFRS. In this way, the European Union attempts to improve financial reporting quality and increase comparability of financial statements in Europe. While a single set of accounting standards undoubtedly contributes to the comparability of financial statements, concerns have been expressed that differences in financial reporting quality across countries will be "pushed down to the level of implementation and now will be concealed by a veneer of uniformity" (Ball 2006). The purpose of this paper is to empirically address this concern by examining whether companies strategically use IFRS in line with their financial reporting incentives and whether IFRS is implemented uniformly across auditors and judicial settings. In particular, we focus on the requirement contained in IFRS 3 and IAS 36 that goodwill is subject to a yearly impairment test and should be impaired to fair value if necessary. The choice for examining the implementation of the goodwill impairment test is motivated by doubts raised on whether managers and auditors will do the assets impairment tests with the same degree of diligence in all countries (Ball 2006). One reason for this is that there is more judgment needed under fair value accounting, which provides opportunities for managers to manage earnings. Furthermore, monitoring mechanisms still operate differently across countries. This paper addresses this concern empirically by investigating the impact of reporting incentives on the occurrence of goodwill impairments and by examining to what extent there is uniformity in goodwill impairment decisions among auditors and across different judicial settings within Europe.

Our paper contributes to the literature in at least two ways. First, we contribute to the recent but growing literature on the impact of IFRS on financial reporting quality. Insights from this type of research may be highly relevant for standard setters, regulators and oversight bodies. Second, we contribute to the auditing literature by looking at a specific implementation issue of an IAS standard as a new proxy for audit quality, i.e. recognition of goodwill and goodwill impairment.

Using a sample of listed companies in 15 EU countries preparing financial statements under IFRS in the period 2005-2006, we find that the goodwill impairment decision is highly associated with financial reporting incentives. More specifically, our findings support that companies typically take their impairments when earnings are 'unexpectedly' high (smoothing) or when they are 'unexpectedly' low ('big bath' accounting).

Our results further show that overall there is no difference in the frequency of goodwill impairments between firms audited by Big 4 and non-Big 4 auditors. However, when income-decreasing reporting incentives are low, firms audited by Big 4 auditors tend to take more goodwill impairments than firms audited by non-Big 4 auditors. As income-decreasing reporting incentives increase, the likelihood of taking a goodwill impairment increases significantly, but only for firms audited by non-Big 4 auditors. These results suggest that Big 4 auditors do a better job in constraining the use of the goodwill impairment test as a tool to manage earnings.

Furthermore, it appears that the frequency of goodwill impairments is not uniform across countries, and depends on the quality of the judicial system of the country. In particular, we find that companies domiciled in countries with a weak legal regime take

less impairments compared to companies domiciled in countries with a strong legal system, while controlling for economic factors and financial reporting incentives. These results support earlier research by Bushman and Piotroski (2006) that higher quality judicial systems lead to more conservative reporting.

Overall, these results suggest that asset impairment tests create opportunities for managers to engage in earnings management and that they are not implemented uniformly across auditors and countries. While the aim of the European Union was to increase financial reporting quality and comparability of financial statements in Europe, it seems that opportunities for earnings management and differences in earnings quality across auditors and countries continue to exist and have found their way in the implementation of the standards. An important policy implication of this study is that the benefits of introducing in the EU a single set of high-quality standards, like IFRS are claimed to be, may not be fully exploited in the presence of variation in audit quality and judicial settings regimes.

The remainder of this paper is organized as follows. In the next section, we summarize insights from prior research examining asset impairments and discuss accounting for business combinations under IFRS. In Section 3, we describe widespread concerns regarding the implementation of IFRS in practice and develop our research hypotheses. Our sample and research design are described in Section 4. Results and sensitivity analysis are presented in Section 5 and 6. We conclude our paper with a discussion of our main findings.

II. BACKGROUND

A) PRIOR LITERATURE

Asset Impairments

Numerous studies have examined causes and effects of asset impairments. There are several reasons why such impairments have been of interest to business, legislative and academic world. First, empirical evidence indicates that impairments can have a large impact on both accounting earnings and the book value of assets. Alciatore et al. (1998) document in a literature review of a decade of asset impairment research that the mean amount of the impairments ranges from 4% to 19.4% of total assets. Second, most accounting standards allow firms a great deal of flexibility in accounting for the impairment of some types of assets (e.g. long-lived assets). As noted by Elliot et al. (1988), asset impairments '*differ from most financial statement information because of greater discretion as to their magnitude and timing*'. Third, interest in this area has been stimulated by the issuance of new accounting standards on business combinations and asset impairments, both by the FASB (SFAS 142 and SFAS 121) and the IASB (IFRS 3 and IAS 36). These standards abandon the annual depreciation of goodwill and replace it with an annual impairment test based on 'fair value' estimates of the acquired business.

A main research question in the literature is to investigate the characteristics of firms taking an asset impairment, including the incentives of company management in these firms to manage earnings. This idea comes from the conjecture in the business press that firms could be using the discretion inherent in GAAP pertaining to asset impairments in their self interest. For example, firms may use GAAP flexibility to avoid

taking impairments due to concerns about potentially negative stock market reaction to such charges. Other firms could record an impairment when earnings are particularly high in order to smooth income, or, alternatively, they could 'take a bath' by accelerating an impairment when earnings are already poor to maximize profits in future periods. This flexibility suggests that impairment decisions could be strategically used by managers to adjust the timing and amounts of charges to income (Alciatore et al. 1998).

Empirical evidence is consistent with this strategic behaviour. Francis et al. (1996) show that managers use two different sorts of determinants in the asset impairment decision. On the one hand, managers take into account factors that reflect declines in the values of assets due to poor firm performance, increased competition and changes in economic climate. On the other hand, asset impairment decisions may be influenced by personal reporting incentives, i.e. management may take advantage of the discretion afforded by accounting rules to manipulate earnings by either not recognizing impairments when it needs to, or by recognizing impairments only when it is advantageous for them to do so. Francis et al. (1996) further investigate the extent to which proxies for economic asset impairments and proxies for managerial incentives to manipulate earnings explain impairment decisions. They find that in 'discretionary' impairment decisions (such as goodwill write-offs and restructuring charges) financial reporting incentives play a substantial role.

The degree to which managerial reporting incentives play a role in the impairment decision depends on the flexibility allowed by the accounting standards in place. In this regard, a study by Riedl (2004) shows a higher association between impairments and 'big bath' behavior after the introduction of US SFAS 121, '*Accounting for the impairment of*

long-lived assets', a standard that, according to critics, introduced additional subjectivity into the impairment decision. The increased discretion allowed by SFAS 121 enables managers to more easily justify their reporting choices compared to before the introduction of the standard.

Goodwill Impairments

Next to the numerous studies on asset impairments in general, there also exists some research on goodwill impairments in particular. Hayn and Hughes (2006) find that the characteristics of the original acquisition are more predictive for the likelihood of an impairment than are the performance indicators of the acquired entities at the moment of the impairment, suggesting that the ability to predict goodwill impairment based on economic information provided in the financial statements at the moment of an impairment is limited. Beatty and Weber (2006) show that firms' debt contracting, bonuses, CEO turnover and exchange delisting incentives affect their impairment decision.

Overall, this evidence suggests that company's impairment decisions are influenced by managerial reporting incentives other than purely economic factors. The role of these incentives in the impairment decision is associated with the potential for discretion induced by certain firm characteristics and the flexibility in the accounting standards in place.

B) ACCOUNTING FOR BUSINESS COMBINATIONS UNDER IFRS

Before 2004, accounting treatment for mergers and acquisitions according to IFRS was regulated by IAS 22 '*Business Combinations'* , requiring an acquisition to be

accounted for using the acquisition method of accounting[1], whereby goodwill was recognized as an asset and amortized over its useful life (IAS 22.19; IAS 22.44). In the 'rare' situations where an acquirer could not be identified (a uniting of interest) the pooling of interest method[2] was required (IAS 22.10; IAS 22.70). The use of different accounting treatments for similar transactions resulted in incentives to arrange transactions solely to take advantage of these differences[3].

For these reasons and in the light of the IFRS/US GAAP convergence project, the IASB issued a new standard on Business Combinations (IFRS 3) in March 2004, together with a revision of IAS 36 '*Impairment of assets'* and IAS 38 '*Intangible assets'*. IFRS 3 supersedes the previous IAS 22 and requires that the 'acquisition method' of accounting must be applied to business combinations within the scope of the standard *without exceptions*. Under the 'acquisition method' of accounting the cost of acquisition is measured at its fair value, as are the assets, liabilities and contingent liabilities of the acquiree at the date of the acquisition. Any excess of the acquirer's interest in the net fair value of the assets acquired over the cost of acquisition is treated as goodwill and recognized as an asset on the balance sheet. Goodwill is no longer amortised, but tested for impairment annually (IAS 36), or more frequently if events or changes in circumstances indicate that it might be impaired. This represents a significant change from the requirements under IAS 22 as amortisation of goodwill is no longer required or permitted.

IAS 36 requires the recognition of an impairment loss whenever the asset's carrying amount exceeds its recoverable amount. An asset's recoverable amount is defined as the higher of its value in use (the present value of the future cash flows

expected to be derived from the asset) and its fair value less costs to sell (the amount obtainable from the sale of an asset in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal). Because goodwill in itself does not have an independent value in use or a fair value less costs to sell (because it cannot be sold independently of the other assets that make up the business), goodwill is allocated to cash-generating units in order to asses its recoverability.

Although IFRS 3 has cut a significant area of managerial discretion by eliminating the 'pooling method' to account for business combinations, critics argue that the replacement of the annual amortization of goodwill with an annual impairment test provides managers with another tool for earnings management[4] (Ball 2006). The assumptions by management needed to carry out the impairment test (i.e. to determine the cash-generating units, to allocate goodwill to them and to assess their recoverable amounts based on fair value estimates) introduce an additional layer of subjectivity.

While in certain EU countries (mainly Germany) some companies already voluntarily applied IFRS prior to 2005, the impact on net income of the transition to IFRS in 2005 was significant for most EU listed companies. For goodwill accounting in particular, it implied that most companies switched from goodwill amortization to impairment tests based on fair value estimates[5] (FEE 2002). Boukari and Richard (2006) find on a sample of 146 large French listed firms that the adoption of IFRS in 2005 resulted in a 42% increase in 2004 net income (restated to IFRS) compared to the use of French GAAP. More interestingly, 60% of the increase in net income could be attributed to abolition of goodwill amortization in favour of impairment. This situation, which can reasonably be extrapolated to other countries switching from goodwill amortization to

impairment, highlights the possible impact of the discretion arising from the application of the IFRS accounting treatment of goodwill in Europe.

III. RESEARCH QUESTION AND DEVELOPMENT OF HYPOTHESES

A) CONCERNS ON THE IMPLEMENTATION OF IFRS IN PRACTICE

International convergence of accounting standards has been gaining momentum in recent years. Since 2005 all EU-listed companies are required to prepare their consolidated accounts under IFRS. With the mandatory introduction of IFRS, the European Union attempts to improve financial reporting quality and increase comparability of financial statements. Moreover, it is argued that 'top-quality accounting standards are essential for the health of the financial markets' (Bolkenstein 2004), and IFRS are considered to be high quality accounting standards.

Do uniform accounting standards inevitably lead to worldwide comparable financial statements? Not necessarily. Convergence in actual financial reporting practice and convergence in financial reporting standards are two different things. Differences in audit quality, legal backgrounds, business forms, investor protection, and socioeconomic and political systems may lead to noncomparable financial reporting despite similar accounting standards (Chen et al. 2002). Even within similar economic and legal frameworks, differences can arise due to the complexity of transactions. Preparers of financial statements must make assumptions in estimating future costs and revenues on long-term contracts, future pension liabilities, asset lives and many other matters. Companies can deal in different ways with the assumptions underlying accounting for all kinds of complex transactions. (Ball 2006) argues that 'the differences in financial

reporting quality that are inevitable among countries have been pushed down to the level of implementation, and now will be concealed by a veneer of uniformity'.

In particular, the use of 'fair value accounting' raises many doubts. Critics argue that 'fair value accounting' could be strategically used be managers to adjust the timing and amounts of charges to income. Sir David Tweedie, chairman of the IASB, agrees that accounting standards are only one pillar upon which a sound financial reporting structure should be built. He acknowledges that an important role is put aside for corporate governance, audit and enforcement mechanisms to improve the financial reporting environment in which the standards operate (Tweedie 2004). Previous research has demonstrated that audit quality is not uniform across audit firms (e.g. Francis and Wang 2008; Maijoor and Vanstraelen 2006; Reynolds and Francis 2000). The increasing use of fair value accounting may even sharpen these differences. In a recent meeting of the US Public Company Oversight Board (PCAOB), members of its advisory group expressed concerns that auditors lack the necessary training in valuation methods for estimating fair values (Johnson 2007). This raises serious questions with regard to the implementation of the fair value principle in practice.

Moreover, it is questionable whether managers will determine fair value with the same degree of diligence in all countries. (Ball 2006) doubts that this is the case. One reason for this is that there is more judgment needed under fair value accounting, especially in countries with less liquid markets and poorer information about asset impairment. For these reasons, it is an open question as to whether 'de jure harmonization' of accounting standards will actually lead to 'de facto harmonization' of financial reporting.

The purpose of this paper is to investigate whether the goodwill impairment test as required by IFRS is strategically used to manage earnings and to explore whether there are differences in the implementation of this test across auditors and across different judicial settings within Europe.

B) Development of Hypotheses

As illustrated in the impairment matrix that we develop in Figure 1, irregularities in the goodwill impairment test can lead to two types of flaws in financial reporting. On the one hand, firms can fail to report a goodwill impairment, when goodwill is overvalued (type II error) and, on the other hand, they can report an impairment when it is not appropriate, i.e. when the fair value of goodwill is higher than its book value (type I error).

Using the impairment matrix, we develop our hypotheses below in terms of earnings management incentives, auditor type and institutional setting.

Earnings management incentives

Agency contracts between managers and shareholders are designed to align managerial incentives and shareholders benefits. For instance, stock options and earnings-based bonus plans encourage managers to maximize shareholders wealth by maximizing earnings. Therefore, we expect that managers have incentives to postpone impairments in order to maximize their wealth (type II error). However, in certain circumstances, maximizing reporting earnings may not be the optimal strategy for managers. Kirschenheiter and Melumad (2002) elaborate on one rationale for income-decreasing behavior by managers and present a model wherein large earnings surprises

reduce the inferred precision of the earnings number, and thereby dampen the effect on firm value. Therefore, managers have incentives to smooth earnings in case of high unexpected earnings and, to underreport earnings by the maximum and take a 'big bath' in case of sufficiently low earnings. In particular, they could minimize reported earnings by not postponing impairments (less type II errors) and/or by accelerating impairments (type I error). The assumptions needed to carry out the goodwill impairment test may provide managers with the necessary discretion to engage in these forms of earnings management. Therefore, we hypothesize that:

H1a: Firms are more likely to take a goodwill impairment when their earnings are 'unexpectedly' low, ceteris paribus.

H1b: Firms are more likely to take a goodwill impairment when their earnings are 'unexpectedly' high, ceteris paribus.

Auditor type

In constraining opportunistic earnings management behavior an important role is put aside for the auditor. However, previous research has shown that differences in audit quality exist and can be inferred by examining different classes of auditors. Based on the premise that audit firm size is a proxy for quality (e.g. DeAngelo 1981), the literature generally makes a distinction between Big 4 and non-Big 4 auditors.

As explained above managers of listed companies often have incentives to maximize reported earnings because of agency contracts with the firm's shareholders. As a consequence, in absence of incentives for income-decreasing behavior (f.e. large earnings surprises), we expect that managers will be reluctant to take impairments in

order to maximize the value of their earnings-based bonus plans and stock options. The large amount of assumptions needed to carry out the goodwill impairment test may give managers enough discretion to postpone the write-down of impaired goodwill (type II error).

If we define audit quality as the probability that an audit firm will both discover a breach in a client's financial reporting and report the breach (DeAngelo 1981), high quality audit firms will both have the expertise and independence to find any overly optimistic assumptions in the impairment test and accordingly force firms to adjust these assumptions downwards, which could trigger an impairment. Lower quality audit firms, on the other hand, are less likely to be able to detect these flaws in the impairment test, or force firms to report the impairment. Therefore, we hypothesize that:

H2a: When income-decreasing reporting incentives are low, firms audited by Big 4 audit firms take more goodwill impairments than firms audited by non-Big 4 audit firms, ceteris paribus.

However, as stipulated in hypothesis 1, we expect managers to be encouraged to underreport earnings in case of large earnings surprises. In that case, firms have incentives to report all impairments (less type II errors) and even accelerate impairments (type I errors) to boost performance in the future. Similar to preventing income-increasing earnings management, high quality auditors are expected to be more likely to constrain this form of income-decreasing behavior and prevent firms from taking impairments when they are not required. Therefore, we hypothesize that:

H2b: When income-decreasing reporting incentives increase, the likelihood of taking a goodwill impairment will increase less for firms audited by a Big 4 audit firm, than for firms audited by a non-Big 4 audit firm, ceteris paribus.

Institutional setting

As indicated in the beginning of this section, it is still unclear whether the European Union will succeed in its attempt to achieve harmonization in accounting practices by promulgating the use of IFRS in the consolidated financial statements of all companies listed in the European Union. There is ample research that provides evidence for the fact that reported accounting numbers are shaped by the historical, economical and institutional structure in which firms are domiciled.

Bushman and Piotroski (2006) empirically analyze the relations between key characteristics of economy-level institutions and accounting conservatism. The underlying premise for their research is that a country's institutional setting, securities laws, political context and tax regime create incentives that influence the behavior of managers, investors, regulators and other market participants. According to the authors there are two channels through which high quality judicial systems will lead to more conservative reporting. First, they argue that stronger judicial regimes lead to a more prominent role for the use of accounting numbers in formal contracts. As a consequence, firms in countries with stronger judicial regimes may face higher contracting demand for conservative reporting. Second, high quality judicial systems can increase the potential litigation costs to firms from overstating economic performance. Therefore, we hypothesize that:

H3a: Firms in countries with a high quality judicial system take more goodwill impairments than firms in countries with a low quality judicial system, ceteris paribus.

However, in case of large earnings surprises, firms have more incentives to be conservative and take an impairment. Given the lower litigation costs of GAAP violations in countries with a low quality judicial system, this might result in an acceleration of goodwill impairments in years when goodwill is not impaired (type I errors). Since firms in countries with a stronger judicial system are hypothesized to be more conservative in general, we expect the increase in the likelihood of recording a goodwill impairment in these countries to be smaller. Or:

H3b: When income-decreasing reporting incentives increase, the likelihood of taking a goodwill impairment will increase less for firms in countries with a high quality judicial system, than for firms in countries with a low quality judicial system, ceteris paribus.

IV. RESEARCH DESIGN

A) SAMPLE

The IFRS regulation, adopted by the Council of the European Union in 2002, requires all companies incorporated in an EU member state and whose securities have been admitted to trading on a regulated market of any member state, to prepare their consolidated accounts in accordance with IFRS for financial years starting from 2005. Our sample consists of all domestic listed companies from the 15 European member countries before the EU enlargement in 2004 and 2007[6] (Austria, Belgium, Denmark,

Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and UK) that are required to prepare consolidated financial statements under IFRS during the period 2005 and 2006[7]. This gives 4453 firm-year observations. Further we exclude financial institutions and insurance companies (SIC 60-67), firms for which data is not available for some variables, extreme observations and firms with no goodwill in their opening balance sheet. This gives a final sample of 2262 firm-year observations. Additionally, we define a subsample of firms with a higher likelihood of having overvalued goodwill on their balance sheet[8]. Similar to Beatty and Weber (2006), this subsample consists of companies with a difference between the market and book value of their equity that is less than their opening balance of goodwill. This is the case for 18% of our sample or 411 firm-year observations. All data is retrieved from Thomson's financial databases Worldscope Fundamentals and Datastream.

B) EMPIRICAL MODEL

Dependent variable and research design

We analyze the effects of certain factors on the goodwill impairment decision using a logit model[9], with as the dependent variable an indicator variable (IMP_{it}) that takes the value of one if firm *i* takes a goodwill impairment in year *t* and zero otherwise.

Independent variables

Variables of interest

To test hypothesis 1, we follow Bartov (1993), Francis et al. (1996) and Riedl (2004) and include separate variables that indicate when earnings are 'unexpectedly' high and when they are 'unexpectedly' low. To proxy for 'big bath' reporting behavior

($BATH_{it}$), we include an indicator variable that equals one if the change in a firm's prewrite-down earnings divided by lagged total assets is below the median of non-zero negative values and zero otherwise. In this case earnings are 'unexpectedly' low. Another indicator variable is included to proxy for 'smoothing' behavior ($SMOOTH_{it}$). This variable is equal to one if the change in a firm's prewrite-down earnings divided by lagged total assets is above the median of non-zero positive values for this variable and zero otherwise.

To test hypothesis 2, a dichotomous variable is used to indicate whether the firm has a Big 4 auditor or not ($BIG4_{it}$). To examine the potential interaction effect between auditor type and income-decreasing incentives, we include interaction terms between the 'big bath' and 'smoothing' variables and the auditor indicator variable.

Finally, for testing hypothesis 3, we include the country-specific 'rule of law' score (LAW_{it}) developed by the World Bank (Kaufmann et al. 2007). The 'rule of law' score measures the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence (Kaufmann et al. 2007). Further, we include interaction terms between this 'rule of law' score and the 'big bath' and 'smoothing' indicator variables.

Control variables

All regression models include industry- and year- fixed effects. Thus, our specification controls for differences in impairment tests across industries and time trends. In addition, all regression models include country-fixed effects to test hypotheses 1 and 2 (model 1, 2 and 3) or country characteristics to test hypothesis 3 (model 4 and 5).

We include size ($SIZE_{it}$) and the percentage of the goodwill opening balance on total assets (GW_{it-1}) to control for their effect on the impairment decision.

Since prior differences in local GAAP affect the composition and the opening balance of recognized goodwill, a risk exists that the coefficient on the 'rule of law' score (hypothesis 3) picks up the effect of prior differences in local GAAP that influence the amount of goodwill on the opening balance sheet and as a consequence the likelihood of an impairment. One way to deal with this potential problem is to control for these a priori differences in the goodwill treatment between countries. Therefore, we include in model 4 and 5 (hypothesis 3) a variable that equals the median proportion of goodwill on the opening balance sheet in a particular country ($GW\_country_{it}$). By doing so, we control for pre-IFRS accounting differences between countries, which are reflected in the amount of goodwill that is recorded on the balance sheet (not expensed or written off to reserves).

Further, we include a number of variables designed to reflect the economic factors that affect an impairment decision. First, in model 4 and 5 (hypotheses 3), we include the percentage change in Gross Domestic Product (ΔGDP_{it}) in the country in which the firm is incorporated to capture macroeconomic effects. A negative evolution of the GDP over time indicates an overall economic decline which can negatively affect the fair value of a firm's cash-generating units. In models 1 to 3 country effects are captured by the fixed effects.

Second, we control for the overall economic performance of the industry in which the firm operates by including the percentage change in the firm's industry return on assets ($\Delta indROA_{it}$). Similar to Francis et al. (1996), we measure this construct as the

change in industry median return on assets over the prior year. Industry is defined using the 2-digit SIC code.

Finally, we include two firm-specific factors that are associated with the economic condition of the firm. The first is the change in the firm's sales over the prior year divided by lagged total assets ($\Delta SALES_{it}$). Second, we include the change in the firm's operating cash flow (ΔCFO_{it}).

Hence, our empirical models estimated at the firm-year level look as follows:

Model 1, 2 and 3

$$\begin{aligned} IMP_{it} = {} & \alpha_0 + \alpha_1 GW_{it-1} + \alpha_2 SIZE_{it} + \alpha_3 \Delta indROA_{it} + \alpha_4 \Delta SALES_{it} + \alpha_5 \Delta CFO_{it} + \alpha_6 BATH_{it} \\ & + \alpha_7 SMOOTH_{it} + \alpha_8 BIG4_{it} + \alpha_9 BATH_{it} * BIG4_{it} + \alpha_{10} SMOOTH_{it} * BIG4_{it} \\ & + \sum \alpha_j Controls_{itj} + \varepsilon_{it} \end{aligned} \quad (1)$$

Model 4 and 5

$$\begin{aligned} IMP_{it} = {} & \alpha_0 + \alpha_1 GW_{it-1} + \alpha_2 SIZE_{it} + \alpha_3 GW\_country_{it} + \alpha_4 \Delta GDP_{it} + \alpha_5 \Delta indROA_{it} + \alpha_6 \Delta SALES_{it} \\ & + \alpha_7 \Delta CFO_{it} + \alpha_8 BATH_{it} + \alpha_9 SMOOTH_{it} + \alpha_{10} LAW_{it} + \alpha_{11} BATH_{it} * LAW_{it} \\ & + \alpha_{12} SMOOTH_{it} * LAW_{it} + \sum \alpha_j Controls_{itj} + \varepsilon_{it} \end{aligned} \quad (2)$$

Where:

IMP_{it}	= indicator variable (equal to one if impairment reported, else 0)
GW_{it-1}	= ratio of firm i's opening balance of goodwill on total assets
$SIZE_{it}$	= natural logarithm of firm i's total assets
$GW\_COUNTRY_{it}$	= median proportion of goodwill on the opening balance sheet in the country in which firm i is domiciled
ΔGDP_{it}	= the % change is Gross Domestic Product from year t-1 to year t in the country in which firm i is domiciled
$\Delta indROA_{it}$	= the median change in firm i's industry return on assets from period t-1 to t, where industry is defined on a 2-digit SIC level
$\Delta SALES_{it}$	= firm i's change in sales from year t-1 to year t, divided by total assets at the end of year t-1
ΔCFO_{it}	= firm i's change in operating cash flows from year t-1 to year t, divided by total assets at the end of year t-1
$BATH_{it}$	= indicator variable to proxy for 'big bath' reporting (equal to one if the change in firm i's pre-impaired earnings from year t-1 to t, divided by total assets at year t-1 is below the median of non-zero negative values, else 0)

$SMOOTH_{it}$ = indicator variable to proxy for 'earnings smoothing'(equal to one if the change in firm i's pre-impaired earnings from year t-1 to t, divided by total assets at year t-1 is above the median of non-zero positive values, else 0)

$BIG4_{it}$ = indicator variable (equal to one in case of a Big 4 auditor, else 0)

LAW_{it} = the 'rule of law' score for the county in which firm i is domiciled from Kaufmann et al. (2007)

V. RESULTS

A) DESCRIPTIVE STATISTICS

The full sample contains 2262 firm-year observations. 15.03 % and 16.10% of the companies have taken an impairment in 2005 and 2006 respectively. The average impairment represents 8.72% of the opening balance of goodwill. The descriptive statistics by country[10] and industry are presented in Table 1. Greece (Austria) has the lowest (highest) percentage of goodwill impairments in both years. The average percentage of goodwill actually impaired is the lowest in Portugal (0.24%) and the highest in the Luxembourg (23.81%). The relative frequency of impairments ranges from 12.54% of the companies in the 'Wholesale trade' industry (SIC 50-59) to 19.05% in the 'Transportation, communication, electricity, gas and sanitary services' industry (SIC 40-49).

The descriptive statistics of all variables are reported in Table 2. Panel A, B and C represent the statistics for the total sample, the impairment sample and the non-impairment sample respectively. As expected, the mean values for the economic factors, ΔindROA, ΔSALES and ΔCFO (financial reporting incentives, BATH and SMOOTH), are slightly lower (higher) for the impairment sample than for the non-impairment sample.

Table 3 includes Pearson correlation coefficients among all variables. As can be seen, the risk of bias due to strong correlations is minimal.

B) REGRESSION RESULTS

Table 4 reports the regression results for the pooled sample, containing all firm-year observations with goodwill on their balance sheet (sample 1), and a subsample of firm-year observation which we consider to have a higher likelihood of overvalued goodwill (i.e. opening balance of goodwill is higher than difference between market and book value of equity) (sample 2). We tabulate coefficients from logit regression models and, in parentheses, p-values based on robust standard errors that are clustered by firm[11].

Overall, we find that the likelihood of reporting a goodwill impairment is positively associated with the proportion of goodwill on the balance sheet (GW) and the size of the firm (SIZE) and negatively, as predicted, with the economic factors (ΔGDP, ΔindROA, ΔSALES and ΔCFO). The income-decreasing reporting incentives proxies are significantly positive, suggesting that firms impair their goodwill more often when earnings are unexpectedly low ('big bath') or high (smooth). These results indicate that firms strategically use the goodwill impairment test to manage their earnings, which is consistent with hypothesis 1a and b.

The results for the second hypothesis are reported in model 2 and 3. For the pooled sample (sample 1) the coefficient on the Big 4 indicator in model 2 is not significantly different from zero, suggesting that overall there are no differences in the likelihood of reporting a goodwill impairment across auditors. This result is not surprising, since we expect Big 4 auditors, on the one hand, to force firms to report write-

downs in case of impaired goodwill (less type II errors) and, on the other hand, to prevent them from accelerating impairments (i.e. taking impairments that are not necessary (type I errors)). However, when we restrict the sample to observations with a high likelihood of overvalued goodwill (sample 2), the coefficient on the Big 4 indicator increases and becomes significantly positive (model 2). This means that firms audited by Big 4 auditors impair their goodwill more often than firms audited by non-Big 4 auditors, suggesting that non-Big 4 auditors give firms more discretion to engage in income-increasing earnings management by postponing goodwill impairments (type II errors). The positive coefficient on the Big 4 indicator in model 3 confirms this result (sample 1 and 2). Indeed, as stipulated in hypothesis 2a, firms audited by Big 4 auditors take significantly more impairments than firms audited by non-Big 4 auditors, when incentives to underreport earnings are low. Additionally, the results for model 3 show that the coefficients on the interaction terms between the Big 4 indicator and the income-decreasing reporting incentives have an opposite sign to and are smaller than their corresponding main effect (BATH and SMOOTH). Consistent with hypothesis 2b, this finding indicates that, when there are incentives to underreport earnings, the likelihood of taking a goodwill impairment will increase more for firms audited by a non-Big 4 auditor than for firms audited by a Big 4 auditor.

To test hypothesis 3, we include the variable 'rule of law' (LAW) as a proxy for the country's legal environment in the regression model (model 4 and 5). The LAW variable is highly significant and positive, which indicates that firms in countries with a low quality judicial system take less goodwill impairments. These results support hypothesis 3a and are consistent with the findings of Bushman and Piotroski (2006) that a

high quality judicial system can lead to more conservative reporting. On the contrary, we find no support for hypothesis 3b. The lack of significant results on the interaction terms between the 'rule of law' score and the income-decreasing incentives (model 5), could be caused by the fact that our study focuses solely on European countries. Continental European countries clearly show some similarities (e.g. code law system, stakeholder orientation). Therefore, differences in litigation costs caused by differences in the quality of the judicial systems might be too small to result in significant differences in earnings management.

VI. SENSITIVITY ANALYSIS

We performed a number of sensitivity analyses to check the robustness of our results.

Interaction between auditor type and income-decreasing incentives

To provide a better insight into the interaction between auditor type and income-decreasing reporting incentives, we split the sample by auditor type (BIG4) and by the presence of income-decreasing incentives (BATH, SMOOTH). The results are reported in Table 5. The coefficients for most variables are not significantly different for the two groups. Yet, some interesting results emerge.

First, we find that the coefficients on the income-decreasing incentives (BATH, SMOOTH) are not significant for firms audited by a Big 4 audit firm, whereas they are highly significant for firms audited by non-Big 4 auditors (panel 1). Moreover, the Chi-square statistics show that the differences between the corresponding coefficients are highly significant. These results suggest that reported goodwill impairments in firms

audited by non-Big 4 (Big 4) auditors are (not) driven by earnings management incentives, which is consistent with the premise that Big 4 auditors provide a higher quality.

Second, the coefficient on the Big 4 indicator variable has an opposite sign for firms with income-increasing and income-decreasing incentives (panel 2). More specifically, the coefficient is significantly positive (negative) for firms-year observations with low (high) income-decreasing reporting incentives. The positive coefficient for the low incentives group confirms our results for hypothesis 2a in Table 5, that, when income-decreasing reporting incentives are low, firms audited by a Big 4 auditor will take more goodwill impairments than firms audited by non-Big 4 auditors. On the other hand, the negative sign for the Big 4 indicator in the high income-decreasing reporting incentives group suggest that, in case of large earnings surprises, the likelihood of taking a goodwill impairment is higher for firms audited by a non-Big 4 auditor. Untabulated results show that the same coefficient is no longer significantly different from zero for firm-year observations with a high likelihood of overvalued goodwill (sample 2). Although this does not provide direct evidence, these findings are consistent with the premise that firms audited by non-Big 4 auditors are more likely to accelerate goodwill impairments (type I errors) in case of large earnings surprises.

Institutional variables

The results reported in Table 4 strongly support hypothesis 3a, suggesting that a country's 'rule of law' can influence incentives to produce conservative accounting numbers. In particular, we find that firms in countries with a high 'rule of law' score take more goodwill impairments than firms in countries with a low level for this indicator.

Since country-level metrics are likely to have measurement error and because there are multiple dimensions to the judicial environment of a country, we test the effect of including alternative measures for this construct in our analysis.

In particular, we include the La Porta et al. (1998) estimates for 'efficiency of the judicial system', 'rule of law' and 'corruption' in the regression model. The 'efficiency of the judicial system' variable assesses the efficiency and integrity of the legal environment as it affects business. The 'rule of law' construct measures the law and order tradition in a country and the 'corruption' variable captures the level of corruption in government, with lower scores indicating a higher level of corruption. All three variables were positive and highly significant at 1% level (p=0.000).

Further, we include a measure of judicial impartiality as reported in the Economic Freedom of the World's 2007 annual report. This measure captures whether a trusted legal framework exists for private businesses to challenge the legality of government actions or regulation. This variable was also used in Bushman and Piotroski (2006) to examine the impact of the quality of a country's judicial system on conservative reporting. Consistent with hypothesis 3, the coefficient of this variable is positive and highly significant (p=0.000).

Overall, these results suggest that the quality of a country's judicial setting is highly associated with the frequency and the magnitude of goodwill impairments under IFRS, consistent with insights from prior research that a country's legal institutions can provide incentives to produce conservative accounting numbers. However, the interaction effects between the institutional variables and the proxies for income-decreasing behavior (BATH, SMOOTH) are not significant.

Analyses using market-based performance measures

Prior research (Francis et al. 1996; Riedl 2004) often includes market-based performance measures to explain reported impairments. Indeed, stock prices might serve as comprehensive measures of the firm's economical conditions, as well as capture expectations of future performance. On the other hand, market-based measures are likely to be endogenous since impairments are also used as an input to determine firm value. Accordingly, we re-estimate equations (1) and (2) incorporating three market-based performance measures as additional economic factors: (1) the value-weighted stock market return (RETURN_MARKET), (2) the 2-digit SIC industry value-weighted stock return (RETURN_IND), and (3) the firm's stock return (RETURN). Untabulated results for the variables of interest are similar to those previously reported.

VII. CONCLUSION

Our study investigates whether IFRS can be strategically used to manage earnings and whether IFRS is implemented uniformly across auditors and across countries. We focus on the case of goodwill as concern was raised by Ball (2006) that there is more judgment needed under IFRS 3 and therefore it is unlikely that managers and auditors will perform asset impairment tests with the same degree of diligence across countries. We find empirical support for this concern as our results show that the frequency of goodwill impairments are highly associated with financial reporting incentives and are not uniform across auditors and European countries. In particular, we find that firms are more likely to take goodwill impairments when earnings are 'unexpectedly' low ('big bath' accounting) or 'unexpectedly' high (earnings smoothing). Further, our analyses

suggest that Big 4 auditors do a better job than non-Big 4 auditors in constraining the use of the goodwill impairment test as a tool to manage earnings. In particular, our findings are consistent with the fact that, in absence of income-decreasing reporting incentives, firms audited by non-Big 4 auditors have a higher likelihood of postponing goodwill impairments (type II errors) whereas, case of large earnings surprises, they have a higher likelihood of accelerating goodwill impairments in order to take a 'big bath' or smooth earnings (type I errors). Finally, we find that differences in the frequency of goodwill impairments are associated with the strength of the judicial setting, while controlling for economic factors and financial reporting incentives. This is in line with previous findings of Bushman and Piotroski (2006) that high quality judicial systems lead to more conservative reporting (i.e. more impairments).

Overall, our results suggest that after the mandatory introduction of IFRS in the EU, which attempts to increase financial reporting quality and comparability of European financial statements, opportunities for earnings manipulation and differences in accounting across auditors and countries continue to exist and seem to have found their way in the implementation of the standards. An important policy implication of this study is that the potential benefits of introducing a single set of high-quality financial reporting standards are currently not fully exploited, and that one way forward would be to create more uniformity in audit quality and judicial settings.

A limitation of our study relates to the level at which the economic factors are measured. All economic factors defined in the current research design are measured at firm-level. However, as IAS 36 stipulates, impairment tests should be carried out at cash-generating unit level. Financial databases, however, only provide aggregated impairment

numbers. Therefore, the role of economic factors in the impairment decision is likely to be underestimated.

Figure 1

The impairment matrix

		Financial reporting	
		Impairment reported	No impairment reported
Goodwill	Fair Value ∧ Book value	OK	Type II error
	Fair Value ∨ Book value	Type I error	OK

Table 1
Descriptive statistics: impairments[a]

Panel A: Descriptives by country

Country	# listed firms	# impairments (%)	mean % impairment	Std. Dev.	Min	Max.
Austria	*40*	*37.50*	*8.72*	*10.85*	*0.00*	*27.48*
2005	22	40.91	10.09	11.47	0.32	27.48
2006	18	33.33	6.66	10.51	0.00	26.76
Belgium	*78*	*15.38*	*7.17*	*6.68*	*0.90*	*21.32*
2005	37	16.22	4.86	2.15	2.20	7.85
2006	41	14.63	9.47	8.99	0.90	21.32
Denmark	*83*	*18.07*	*6.17*	*9.01*	*0.26*	*32.54*
2005	42	19.05	4.27	4.48	0.26	12.46
2006	41	17.07	8.35	12.47	0.44	32.54
Finland	*151*	*10.60*	*12.93*	*20.10*	*0.07*	*77.78*
2005	77	7.79	13.49	11.07	0.82	30.54
2006	74	13.51	12.59	24.59	0.07	77.78
France	*419*	*16.95*	*4.59*	*7.60*	*0.00*	*35.20*
2005	213	15.96	5.74	9.24	0.12	35.20
2006	206	17.96	3.54	5.64	0.00	29.31
Germany	*249*	*17.67*	*11.48*	*19.80*	*0.02*	*99.04*
2005	118	18.64	14.68	25.12	0.02	99.04
2006	131	16.79	8.28	12.26	0.03	45.80
Greece	*57*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
2005	27	0.00	0.00	0.00	0.00	0.00
2006	30	0.00	0.00	0.00	0.00	0.00
Ireland	*31*	*12.90*	*0.50*	*0.82*	*0.04*	*1.73*
2005	16	6.25	0.10	0.00	0.10	0.10
2006	15	20.00	0.64	0.95	0.04	1.73
Italy	*121*	*4.13*	*6.04*	*6.23*	*0.19*	*14.92*
2005	58	3.45	2.47	0.12	2.39	2.56
2006	63	4.76	8.42	7.52	0.19	14.92
Luxembourg	*12*	*16.67*	*23.81*	*30.26*	*2.41*	*45.20*
2005	6	16.67	2.41	0.00	2.41	2.41
2006	6	16.67	45.20	0.00	45.20	45.20
Netherlands	*121*	*28.93*	*4.65*	*7.29*	*0.10*	*29.71*
2005	55	34.55	4.99	7.22	0.28	27.99
2006	66	24.24	4.25	7.58	0.10	29.71
Portugal	*17*	*11.76*	*0.24*	*0.14*	*0.14*	*0.34*
2005	8	12.50	0.34		0.34	0.34
2006	9	11.11	0.14		0.14	0.14
Spain	*100*	*11.00*	*1.42*	*2.68*	*0.00*	*9.18*
2005	50	12.00	2.06	3.50	0.25	9.18
2006	50	10.00	0.64	1.16	0.00	2.70
Sweden	*185*	*15.68*	*10.37*	*16.80*	*0.01*	*80.00*
2005	91	14.29	8.41	12.01	0.03	33.33
2006	94	17.02	11.97	20.13	0.01	80.00
UK	*598*	*15.22*	*11.03*	*15.40*	*0.03*	*56.77*
2005	324	13.58	12.10	17.15	0.07	56.77
2006	274	17.15	10.03	13.68	0.03	49.73
Total	***2,262***	***15.56***	***8.72***	***10.85***	***0.00***	***27.48***
2005	**1,144**	**15.03**	**10.09**	**11.47**	**0.32**	**27.48**
2006	**1,118**	**16.10**	**6.66**	**10.51**	**0.00**	**26.76**

Table 1 (Con't)
Descriptive statistics: impairments

Panel B: Descriptives by industry

Industry	# listed firms	# impairments (%)	mean % impairments	Std. Dev.	Min	Max.
Mining and construction	*144*	*18.06*	*6.45*	*9.86*	*0.00*	*37.26*
2005	69	15.94	3.06	3.02	0.25	9.08
2006	75	20.00	8.92	12.31	0.00	37.26
Manufacturing	*1,029*	*14.67*	*8.68*	*13.51*	*0.00*	*77.78*
2005	514	13.81	9.56	13.44	0.02	56.77
2006	515	15.53	7.90	13.61	0.00	77.78
Transportation, Communication, electricity, gas and sanitary services	*231*	*19.05*	*4.84*	*7.46*	*0.00*	*34.13*
2005	127	17.32	4.16	6.69	0.03	30.89
2006	104	21.15	5.53	8.26	0.00	34.13
Wholesale trade	*295*	*12.54*	*6.21*	*10.24*	*0.04*	*52.88*
2005	151	14.57	7.57	12.60	0.12	52.88
2006	144	10.42	4.21	4.93	0.04	18.09
Services	*563*	*16.70*	*10.53*	*17.87*	*0.01*	*99.04*
2005	283	16.25	11.73	19.85	0.07	99.04
2006	280	17.14	9.37	15.87	0.01	80.00

a All firms compliant with IFRS and with opening goodwill balances different from zero

Table 2
Descriptive statistics: variables

Panel A: Total sample (n=2262)

Variables[a]	Mean	SD	Min	Max
IMP%	0.0129	0.0621	0.0000	0.9904
GW_{t-1}	0.1592	0.1587	0.0000	0.9654
GW_country	0.0291	0.0187	0.0000	0.0607
SIZE	4,977,795	18,000,000	2,563	310,000,000
ΔGDP	0.0254	0.0109	0.0055	0.0612
ΔindROA	0.0063	0.0136	-0.0645	0.0615
ΔSALES	0.1183	0.2240	-0.8952	0.9967
ΔCFO	0.0076	0.0812	-0.4274	0.4938
BATH	0.1684	0.3743	0.0000	1.0000
SMOOTH	0.3271	0.4693	0.0000	1.0000
BIG4	0.7953	0.4036	0.0000	1.0000
LAW	1.5361	0.3791	0.3700	2.0300

Panel B: Impairment sample (n=352)

Variables[a]	Mean	SD	Min	Max
IMP%	0.0827	0.1381	0.0000	0.9904
GW_{t-1}	0.1843	0.1609	0.0011	0.8387
GW_country	0.0296	0.0190	0.0000	0.0607
SIZE	10,400,000	31,900,000	3484	310,000,000
ΔGDP	0.0249	0.0103	0.0055	0.0612
ΔindROA	0.0047	0.0140	-0.0645	0.0452
ΔSALES	0.0858	0.2106	-0.8911	0.7904
ΔCFO	-0.0026	0.0657	-0.4256	0.3227
BATH	0.1989	0.3997	0.0000	1.0000
SMOOTH	0.3438	0.4756	0.0000	1.0000
BIG4	0.8409	0.3663	0.0000	1.0000
LAW	1.6194	0.2677	0.3700	2.0300

Panel C: Non-impairment sample (n=1910)

Variables[a]	Mean	SD	Min	Max
GW_{t-1}	0.1545	0.1579	0.0000	0.9654
GW_country	0.0290	0.0187	0.0000	0.0607
SIZE	3,973,475	13,800,000	2,563	217,000,000
ΔGDP	0.0255	0.0110	0.0055	0.0612
ΔindROA	0.0066	0.0136	-0.0645	0.0615
ΔSALES	0.1243	0.2259	-0.8952	0.9967
ΔCFO	0.0095	0.0836	-0.4274	0.4938
BATH	0.1628	0.3693	0.0000	1.0000
SMOOTH	0.3241	0.4682	0.0000	1.0000
BIG4	0.7869	0.4096	0.0000	1.0000
LAW	1.5207	0.3943	0.3700	2.0300

[a] Variable definitions

IMP% = ratio of goodwill impairment on the opening balance of goodwill (GW_{t-1})

SIZE = natural logarithm of total assets

See appendix 1 for other variable definitions

Table 3
Pearson Correlations
(n=2262)

Variables[a]	GW_{t-1}	SIZE	GW_country	ΔGDP	ΔindROA	ΔSALES	ΔCFO	BATH	SMOOTH
SIZE	-0.0165								
GW_country	0.0525**	0.0385*							
ΔGDP	-0.0216	0.0533**	-0.0046						
ΔindROA	-0.0177	-0.0788***	-0.0322	-0.0434**					
ΔSALES	0.0616***	-0.0347*	-0.0022	0.0969***	0.0900***				
ΔCFO	0.0394*	0.0004	-0.0147	-0.0015	0.0502**	0.1359***			
BATH	0.0221	-0.0219	-0.0436**	0.0136	-0.1229***	-0.2002***	-0.1425***		
SMOOTH	-0.0153	-0.0397*	-0.0155	0.0537**	0.1512***	0.1999***	0.1769***	-0.3138***	
LAW	0.0527**	0.0477**	-0.0252	0.2895***	0.0403*	0.0203	0.0019	0.0143	0.1039***

*,**,*** Significantly correlated at the $\alpha = 0.10; 0.05; 0.01$ level, respectively (two-tailed)

[a] See Appendix 1 for variable definitions.

Table 4
Goodwill impairment determinants
(dep. var. = impairment indicator variable)

	Sample 1 recorded $goodwill_{t-1} > 0$					**Sample 2** (Market value equity –Book value equity) < recorded $goodwill_{t-1}$				
Variables [a]	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
GW_{t-1}	1.285	1.287	1.261	1.084	1.077	1.100	1.019	0.984	1.109	1.126
	(0.002)***	(0.002)***	(0.002)***	(0.006)***	(0.006)***	(0.194)	(0.230)	(0.248)	(0.136)	(0.130)
$SIZE_{it}$	0.254	0.249	0.250	0.240	0.240	0.286	0.241	0.248	0.266	0.266
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.001)***	(0.009)***	(0.008)***	(0.001)***	(0.001)***
GW_country				1.639	1.643				1.282	1.403
				(0.671)	(0.671)				(0.882)	(0.870)
Economic factors										
ΔGDP_{it}				-31.981	-31.846				-16.271	-16.173
				(0.001)***	(0.001)***				(0.261)	(0.265)
$\Delta indROA_{it}$	-12.795	-12.819	-13.171	-12.951	-12.882	8.523	7.523	7.821	5.297	5.139
	(0.046)**	(0.045)**	(0.040)**	(0.039)**	(0.040)**	(0.577)	(0.624)	(0.605)	(0.715)	(0.723)
$\Delta SALES_{it}$	-0.741	-0.740	-0.751	-0.643	-0.642	-1.241	-1.105	-1.137	-1.059	-1.120
	(0.010)***	(0.010)***	(0.010)***	(0.022)**	(0.022)**	(0.037)**	(0.067)*	(0.058)*	(0.050)*	(0.036)**
ΔCFO_{it}	-2.280	-2.271	-2.277	-2.232	-2.215	-4.088	-4.041	-4.099	-3.763	-3.759
	(0.002)***	(0.002)***	(0.001)***	(0.002)***	(0.002)***	(0.037)**	(0.044)**	(0.034)**	(0.054)*	(0.051)*
Income-decreasing incentives										
$BATH_{it}$	0.445	0.443	1.396	0.369	0.113	1.286	1.320	2.758	1.222	2.193
	(0.013)**	(0.013)**	(0.002)***	(0.035)**	(0.895)	(0.000)***	(0.000)***	(0.002)***	(0.000)***	(0.130)
$SMOOTH_{it}$	0.409	0.410	1.221	0.353	0.570	0.884	0.891	1.643	0.859	0.866
	(0.005)***	(0.005)***	(0.001)***	(0.015)**	(0.383)	(0.010)**	(0.009)***	(0.008)***	(0.010)***	(0.509)
Auditor type										
$BIG4_{it}$		0.094	0.697				0.656	1.686		
		(0.654)	(0.037)**				(0.097)*	(0.026)**		
$BATH_{it}*BIG4_{it}$			-1.144					-1.832		
			(0.019)**					(0.053)*		
$SMOOTH_{it}*BIG4_{it}$			-0.961					-0.856		
			(0.017)**					(0.234)		
Institutional factors										
LAW_{it}				1.078	1.088				0.893	1.082
				(0.000)***	(0.000)***				(0.025)**	(0.088)*
$BATH_{it}*LAW_{it}$					0.156					-0.628
					(0.762)					(0.491)
$SMOOTH_{it}*LAW_{it}$					-0.132					-0.010
					(0.739)					(0.991)
Constant	-6.302	-6.303	-6.905	-6.028	-6.045	-6.586	-6.453	-7.449	-6.982	-7.282
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Fixed effects	industry/ year/country	industry/ year/country	industry/ year/country	industry/ year	industry/ year	industry/ year/country	industry/ year/country	industry/ year/country	industry/ year	industry/ year
Observations	2262	2262	2262	2262	2262	411	411	411	411	411
Wald Chi^2	130.99***	131.75***	135.19***	109.43***	110.19***	50.30***	55.46***	52.34***	47.42***	46.89***

The table reports coefficient estimates and p-values based on standard errors corrected for heteroskedasticity and for clustering of observations by firm (in parentheses).

*,**,*** Significantly different from zero at the $\alpha = 0.10; 0.05; 0.01$ level, for two-tailed tests

[a] See Appendix 1 for variable definitions

Table 5
Sensitivity analysis: Interaction between auditor type and income-decreasing incentives
(dep. var. = impairment indicator variable)

	PANEL 1 Auditor type			**PANEL 2** Income-decreasing incentives		
Variables[a]	**Non-Big4**	**Big4**	**Difference**[b]	**low**[d]	**high**[d]	**Difference**[c]
GW_{t-1}	0.599	1.437	-0.838	0.314	2.127	-1.813
	(0.573)	(0.001)***	(0.468)	(0.599)	(0.000)***	(0.019)**
$SIZE_{it}$	0.298	0.226	0.072	0.213	0.267	-0.054
	(0.006)***	(0.000)***	(0.535)	(0.000)***	(0.000)***	(0.415)
Economic factors						
$\Delta indROA_{it}$	-0.708	-7.882	7.174	2.182	-12.147	14.329
	(0.947)	(0.125)	(0.546)	(0.793)	(0.026)**	(0.152)
$\Delta SALES_{it}$	-0.532	-0.802	0.270	-1.000	-0.638	-0.362
	(0.486)	(0.013)**	(0.744)	(0.055)*	(0.076)*	(0.562)
ΔCFO_{it}	-1.683	-2.403	0.720	-2.172	-2.563	0.391
	(0.331)	(0.002)***	(0.705)	(0.229)	(0.002)***	(0.851)
Income-decreasing incentives						
$BATH_{it}$	1.797	0.190	1.607			
	(0.000)***	(0.326)	(0.002)***			
$SMOOTH_{it}$	1.368	0.245	1.123			
	(0.001)***	(0.118)	(0.012)**			
Auditor type						
$BIG4_{it}$				0.784	-0.481	0.303
				(0.022)**	(0.063)*	(0.002)***
Constant	-6.600	-4.785	-0.815	-5.121	-4.928	-0.193
	(0.000)***	(0.000)***	(0.287)	(0.000)***	(0.000)***	(0.843)
Fixed effects	industry/ year/ country	industry/ year/ country		industry/ year/ country	industry/ year/ country	
Observations	463	1799		1141	1121	
Wald Chi^2	642.78***			661.17***		

The table reports coefficient estimates and p-values based on standard errors corrected for heteroskedasticity and for clustering of observations by firm (in parentheses).
*,**,*** Significantly different from zero at the α = 0.10; 0.05; 0.01 level, for two-tailed tests
[a] See Appendix 1 for variable definitions
[b] Difference between coefficients of firms audited by a 'Big 4 ' vs 'Non-Big 4' audit firm and p-values from Chi-square statistic (in parentheses)
[c] Difference between coefficients of firms audited by a 'Big 4 ' vs 'Non-Big 4' audit firm and p-values from Chi-square statistic (in parentheses)
[d] Firm-year observations are classified in the high income-decreasing incentives group, when their pre-impaired earnings are unexpectedly low (BATH=1) or high (SMOOTH=1). All other firm-year observations are classified as having low income-decreasing incentives

APPENDIX 1:
Variable definitions

Dependent variable	
IMP_{it}	indicator variable (equal to one if impairment reported, else 0)
Variables of interest	
$BIG4_{it}$	indicator variable equal to one if Big 4 auditor; else 0
LAW_{it}	the rule of law variable for the year 2005 and 2006 from Kaufmann et al. (2007). Higher values represent countries with higher quality legal enforcement.
Economic Factors	
ΔGDP_{it}	the % change in Gross Domestic Product from year *t-1* to year *t* in the country in which firm *i* is domiciled
$\Delta indROA_{it}$	the median change in firm i's industry return on assets from period *t-1* to *t*, where industry is defined on a 2-digit SIC level
$\Delta SALES_{it}$	the change in firm i's sales from period *t-1* to *t*, divided by total assets at the end of *t-1*
ΔCFO_{it}	the change in firm i's operating cash flows from period *t-1* to *t*, divided by total assets at the end of *t-1*
Reporting incentives	
$BATH_{it}$	indicator variable equal to one if the change in firm i's pre-impaired earnings from year *t-1* to *t*, divided by total assets at year *t-1*, is below the median of non-zero negative values; else=0 (the proxy for 'big bath' reporting)
$SMOOTH_{it}$	indicator variable equal to one if firm i's pre-impaired earnings from year *t-1* to *t*, divided by total assets at year *t-1*, is above the median of non-zero positive values; else=0 (the proxy for 'earnings smoothing')
Control variables	
GW_{it-1}	the proportion of pre-impaired goodwill on pre-impaired total assets
$SIZE_{it}$	the logarithm of total assets
GW_COUNTRY	the median proportion of goodwill on the opening balance sheet in the country in which firm *i* is domiciled

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1 Under the 'acquisition' or 'purchase' method the income statement should incorporate the results of the acquiree from the date of acquisition and the balance sheet should include the identifiable assets and liabilities of the acquiree and any goodwill or negative goodwill arising (IAS 22.19).

2 Under the 'pooling of interest' method financial statements items of uniting entities should be combined, in both the current and prior periods as if they had been united from the beginning of the earliest period presented (IAS 22.78). Any difference between the amount recorded as share capital issued plus any additional consideration in the form of cash or other assets and the amount recorded for the share capital acquired should be adjusted against equity (IAS 22.79).

3 In practice the existence of the 2 different methods to account for similar transactions boiled down to a clear preference for the pooling of interest method, because this method allowed acquirers to avoid purchase's negative effects on reported earnings in the years after the acquisition. In order to achieve these perceived benefits managers structured their M&A carefully to meet the requirements necessary to apply pooling of interest. (Walter 1999)

4 The current IASB approach towards business combinations largely coincides with US GAAP SFAS 142. In the due process of SFAS 142 the FASB initially proposed eliminating pooling accounting, and requiring all business combinations to be accounted for using the acquisition method, with amortization required for all acquired goodwill . This proposal met with strong opposition among lobbying firms. The FASB then revised its original proposal: it continued to advocate eliminating pooling and requiring purchase, but now proposed, instead amortization, goodwill impairment. A paper from Ramana (2007), studying the evolution of SAFS 142, provides evidence that pro-pooling firms can be linked – via political contributions- to US Congresspersons pressuring the FASB to eliminate annual amortization in favour of the 'revised' impairment rules, based on unverifiable fair value estimates of goodwill extant value.

5 The EU's 7th Directive permits both capitalization or immediate write-off of goodwill. In practice, local GAAP of some EU member states permitted write-offs (e.g. Italy), while others required capitalization (e.g. Belgium). In the beginning of the 21th century most national regulators followed the issuance of the IASC rules requiring capitalization and abandoned the write-off option. (FEE 2002; Sutton 2004)

6 Since 2004 twelve other countries joined the European Union (Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia). We excluded these new member states from our sample because of lack of data availability and data quality concerns.

7 Since we fix the time period on the years 2005 and 2006, our sample contains first-time adopters of IFRS. As a consequence, our results can be influenced by transition effects from local GAAP to IFRS. However, including an indicator variable that equals one in case of a first-time adoption of IFRS or excluding first-adopters from our regression analysis, leads to similar conclusions for the three hypotheses.

8 In the ideal case, it would be interesting to split our sample between firms with truly impaired goodwill on their balance sheet and firms for which the recorded goodwill is not impaired. The existence of an observable proxy for truly impaired goodwill would conflict with our premise that the application of the goodwill impairment test leaves managers with enough discretion to manage their earnings.

9 We could alternatively model both choices sequentially in a two-stage design, with the first stage capturing the decision to take an impairment and the second, conditional on taking the impairment, the percentage of goodwill that is actually impaired. The results for this two-stage design are qualitatively similar to the one's reported below.

10 Since about 25% of our firm-year observations are from UK-based firms, the current sample is heavily weighted towards observations from the United Kingdom. To alleviate the concern that our results are largely driven by the dominance of firms domiciled in the UK, we also estimate our models without those observations. Untabulated results support our main conclusions.

11 As institutional settings are similar for all firms in a specific country, clustering at the firm level might overstate statistical significance. Unreported sensitivity analyses show that clustering standard errors on the country level produce similar p-values to the ones reported in Table 4.