

How Ethical are Managers' Goodwill Impairment Decisions in Spanish-Listed Firms?

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Abstract This article provides an analysis of the ethical behavior of managers making goodwill impairment decisions following the adoption of the International Financial Reporting Standard (IFRS) 3 on *Business Combinations*. Replacing the systematic amortization of goodwill with the impairment-only approach has been a highly controversial step. Although the aim of IFRS 3 was to provide users with more value-relevant information regarding the underlying economics of the business, it has been criticized for the potential earnings management inherent in impairment testing. This study is based on a sample of Spanish-listed companies between 2005 and 2011, a period that embraces the economic crisis. After controlling for the underlying economic factors of the firms, the results suggest that managers are exercising discretion in the reporting of goodwill impairment losses, and big bath and smoothing strategies are influencing the decisions, whether or not to impair goodwill and about the magnitude of the impairment. Firm size is an attribute that appears significant in the analysis, suggesting that the cost and complexity of running the impairment test affect managers' decisions. Additional analyses suggest that the macroeconomic environment influences opportunistic and unethical behaviors.

Keywords Accounting ethics · Business combinations · Earnings management · Goodwill impairment · IFRS 3 · Managerial ethical behavior · Spain

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Abbreviations

CGU	Cash-generating unit
EU	European Union
EUR	Euro
EFRAG	European Financial Reporting Advisory Group
ESMA	European Securities and Markets Authority
FASB	Financial Accounting Standards Board
GAP	General accounting plan
GDP	Gross domestic product
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
IOS	Investment opportunity set
M&A	Mergers and acquisitions
OLS	Ordinary least squares
SFAS	Statement of Financial Accounting Standards
UK	United Kingdom
US	United States
USA	United States of America
USD	United States Dollar
USGAAP	United States generally accepted accounting principles

Introduction

This article addresses the issue of managers' ethical attitudes toward goodwill impairment, one of the most often discussed accounting changes of the two well-known accounting bodies, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB). This is an area in which managerial discretion is relatively large, allowing managers to engage in

earnings management practices, which, as Merchant and Rockness (1994) have argued, is probably the key ethical issue facing the accounting profession. Thus, the purpose of this article is to determine if the goodwill impairment test is used to fulfill opportunistic motivations and manage earnings, or if, as argued by the accounting standard setters, it serves as a mechanism to provide private information about the underlying economics of the firm.

The link between quality of financial reporting and the (un)ethical conduct of managers has been suggested by accounting scandals, the Enron-Andersen case probably being the most spectacular financial failure in which unethical actions extended to illegal actions and fraud (Rockness and Rockness 2005). This association has also occurred in other less extreme cases, however, in which managers do not necessarily violate the law, but use the flexibility inherent in the preparation of financial statements to engage in earnings manipulation to satisfy their own interests, rather than communicating the financial position of their companies in the most transparent and reliable way (Choi and Pae 2011). We argue that because of difficulties in verifying the value of goodwill, managers can use impairment to manipulate the earnings figure with the intention of deceiving the recipients of financial statements, an action that can be regarded as morally reprehensible and unethical behavior (Gowthorpe and Amat 2005; Jo and Kim 2008). Furthermore, the huge impact of the new goodwill impairment approach on financial information provides a perfect case for analyzing managers' ethical behavior.

The years immediately following the so-called "dot.com crisis" at the beginning of the twenty-first century were characterized by booming economic activity. In 2004, there was an increase in mergers and acquisitions (M&A) that continued up to 2007 (Goergen and Renneboog 2004; Thomson Reuters 2011). These transactions were accompanied by the payment of high premiums; according to an Ernst & Young (2009) report that analyzed 709 transactions in 21 countries during 2007, recognized goodwill represented 47 % of the value of an acquired company. This figure highlights the importance of the central subject of this research—goodwill—and underscores the relevance of its accounting treatment for the future income of the companies concerned. But in 2007, the financial crisis erupted. A sudden change in interest rates, cutbacks in bank financing, and the collapse in real estate values, gradually affected the real economy. Firms then reviewed their expectations about future cash flows for which they had paid large premiums, suggesting a decrease in the value of goodwill and the need to reflect its impairment in the accounting records. Nevertheless, the literature suggests that managers tend to manipulate earnings through the exercise of managerial discretion during an economic crisis (Hayn 1995; Lin and Shih 2002).

Large changes in the economy have run parallel to changes in the accounting regulatory framework. Without trying to be exhaustive, we should mention the 2001 Norwalk agreement between the IASB and the FASB. The agreement evolved into a convergence project, resulting in changes in some International Accounting Standards (IAS) and in the adoption of new International Financial Reporting Standards (IFRS), thereby achieving greater proximity with the United States generally accepted accounting principles (USGAAP). The standards that are especially relevant to this article are IAS 36, which deals with goodwill impairment; and IFRS 3, which addresses business combinations. All these events occurred during the euphoric period that characterized the first years of the twenty-first century. Recent years have seen the end of the euphoria, however, as well as changes in the accounting regulatory framework. In the summer of 2012, the bilateral convergence project came to an end.

Although the quality of financial reporting is often taken to be a matter of compliance with regulations rather than an ethical issue, we concur with Labelle et al. (2010) that the quality of financial reporting also presupposes unwritten rules of ethical behavior. In particular, the FASB's Conceptual Framework introduces notions common to a number of ethical models that are key to achieving "good" accounting information (Frecka 2008). Due to its proximity to the FASB's Conceptual Framework, the same could be argued about the IASB's Conceptual Framework. Despite being fundamental to proper application of the standards, neither of those two documents occupy a relevant role in their respective standards hierarchy, but one major difference is that the US framework is nonauthoritative literature, whereas the IASB framework is embedded in IFRS through IAS 8, which refers to it as an authoritative source to be used by preparers and auditors in developing policies for which there is no applicable standard (EAA FRSC 2014). This issue is critical in dealing with principle-based standards that require the use of professional judgment, as in the case of goodwill accounting.

This article focuses on the Spanish setting for several reasons. First, most of the current financial literature, particularly on this specific topic, is based on the Anglo-American situation in United Kingdom (UK) and USA, and we seek to expand this literature to another institutional context. After the IFRS adoption for consolidated accounts of listed companies, there was an increase in the similarity of the financial reporting environment between Spain and other European Union (EU) countries. We should not underestimate the role of institutional factors in shaping managers' reporting incentives, however—factors like legal institutions, the strength of the enforcement regime, capital market forces, and such characteristics of the firms as ownership and governance structure (Hail et al. 2010).

There is a growing stream of literature that questions the possibility of obtaining the desired objective of increased comparability with the IFRS adoption unless there are further changes in the institutions (Hail et al. 2010; Leuz 2010; Walker 2010). In particular, Cai et al. (2014) find that earnings management in IFRS adoption countries has been decreasing, especially in those countries with higher divergence from IFRS prior to IFRS adoption and stronger enforcement regimes. Because of the very different institutions that still characterize continental European countries, we consider it relevant to understand goodwill impairment in that context. Prior research has also added culture as a key determinant of managers' choices of accounting methods (Sutthachai and Cooke 2009), and has demonstrated its influence on individual ethical perceptions (Armstrong 1996). In particular, Smith and Hume (2005) and Arnold et al. (2007) state that national culture within firms seems to have a greater impact on accountants' ethical predispositions than a company's corporate culture does, which suggests the convenience of focusing on one particular country.

A second reason for choosing Spain as our unit of analysis is, as Glaum et al. (2013) state in their analysis of compliance with IFRS 3 and IAS 36 disclosure requirements, Spain was the second last country to comply, which suggests that it may not be enforcing those requirements as well as it should. This situation moves us to question the ethics of these managers with respect to the measurement of goodwill impairment in Spain. Although there is some prior research providing evidence that Spanish-listed firms manage earnings with the purpose of smoothing them (Gill de Albornoz and Alcarria 2003), avoiding small losses and reductions in earnings (Giner and Gallén 2005; Parte 2008) and increasing that figure using accruals (Callao and Jarne 2011), there is no evidence for earnings manipulation using goodwill impairment.

Our main goal, therefore, is to analyze whether the specific features of Spain regarding its capital market and companies' financing structure, together with the enforcement regime and country governance characteristics result in a significant difference among the factors influencing impairment decisions of Spanish-listed firms compared with those of other countries (see Appendix 1 for details). In particular, Spain belongs to the EU's group of continental countries that are less capital market oriented than other EU countries are, as its financing policies are bank oriented.¹ Thus, regarding credit to the corporate sector,

¹ Using principal components analysis of several financial structure indicators, Bijlsma and Zwart (2013) clustered EU countries into groups. Austria, Denmark, Germany, Greece, Italy, Portugal, and Spain are included in the bank-based group, and The Netherlands, United Kingdom, Belgium, France, Finland, and Sweden in the market-based one. Whereas other EU countries do not fit well in any

Spain is among the top countries in the EU, whereas the UK is among the lowest (Bijlsma and Zwart 2013). The low equity funding is usually associated with lower levels of investor protection, as the antidirector rights index of La Porta et al. (1998) suggests. The enforcement level measured through the rule-of-law index is also lower in Spain than in the EU, and the indicator calculated by Kaufmann et al. (2013) for the World Bank shows that there has been serious deterioration during the period of study, compared with the La Porta et al. index. Moreover, to the extent that the agents' lack confidence in the rules of society, and public power is exercised for private gain—perceptions captured by low values in the worldwide governance indicators (see regulatory quality and control of corruption in Appendix 1)—Spanish managers may have less concern about ethical issues and greater inclination to manage earnings.

Although the interval under study is 2005–2011, in order to obtain an overall view, we have compared this period with the pre-IFRS period, including the years 2000–2004, in which amortization over a maximum of 20 years was required. This comparative analysis is relevant in itself, as the amortization notion has not yet been abandoned. On the contrary, the IFRS for *Small and Medium-sized Entities* (IASB 2009) establishes the amortization of goodwill (subject to recognizing an impairment if there is any indication of reduction in value), arguing that the complexity of the impairment-only method does not make it suitable for these firms. Moreover, in several speeches, IASB Chairman Hans Hoogerworst (2012a, b) has echoed the notion that the accounting treatment of goodwill is vulnerable to manipulation and has highlighted the need to revise the rules on impairment. Indeed the post-implementation review beginning in 2013 is a great opportunity to take these aspects into account, thereby rendering our research timely.

We analyzed the two managerial decisions: to record an impairment, and—if managers chose to impair—the amount of that impairment. First the determinants of the decision to impair goodwill were analyzed through a probit regression, and an ordinary least square (OLS) regression was used to consider the amount of the impairment. The results of this study help to shed some light on the debate and raise questions about the impairment-only decision. In particular, we highlight the fact that unethical opportunistic incentives play a major role in both decisions. Although our analysis is framed in one specific context—Spain—our findings can be extrapolated to other geographical areas

Footnote 1 continued

of these groups, this breakdown confirms that the traditional classification that serves as the basis of the so-called continental vs Anglo-American accounting systems is still valid (Nobes 1983).

with similar institutional backgrounds, in which this discretion is allowed. There are, however, implementation and enforcement issues that should be considered before making inter-country comparisons. Despite the differences, there are similarities. Arguing about the need for fundamental cultural and behavioral changes in the USA, Frecka (2008, p. 53) maintains: “The most basic change that is needed is a change in emphasis from just following the rules to one that focuses on accounting for transactions in the most economically relevant and transparent manner possible.” Indeed this is more than applicable to our setting.

In the following section, we provide the institutional setting. We then review the literature and establish hypotheses about the motivations underlying accounting for goodwill impairment. The section entitled “[Sample and Model Development](#)” focuses on the methodology and data, and the next section, “[Results and discussion](#),” presents the main results of our empirical analysis. Finally, we draw conclusions from our results.

Institutional Setting

Goodwill recognized in a business combination represents the payment made by the acquirer in anticipation of future economic benefits from assets that are not capable of being identified individually and recognized separately (IASB 2004a, IFRS 3, para. 52).² It appears as a consequence of the investment opportunity set (IOS) not captured by the accounting system,³ such as expected synergies from the combination of net assets of the acquirer and the acquiree and advantages due to market imperfections—the ability to obtain monopoly profits or the existence of barriers to market entry, for example. According to the Basis for Conclusions to IAS 36

if a rigorous and operational impairment test could be devised, more useful information would be provided to users of an entity’s financial statements under an approach in which goodwill is not amortized, but is

² In this section, we refer to IFRS 3 (IASB 2004a) and IAS 36 (IASB 2004b), which is the accounting regulation that affects EU countries. Despite some differences in the specific impairment rules, the first step, including the estimation of the fair value of the cash-generating unit (CGU) in order to appreciate if an impairment should be recorded, is basically consistent with the related USGAAP—Statement of Financial Accounting Standard (SFAS) 141 (FASB 2001a) and 142 (FASB 2001b).

³ IFRS 3 requires that acquired assets, liabilities, and contingent liabilities are recognized at fair value by the acquirer if they satisfy the recognition criteria, whether or not they have been recognized previously. Any difference between the purchase price and the total fair value of the identifiable net assets should be recognized as goodwill (IASB 2004a, IFRS 3, para. 36).

tested for impairment annually or more frequently if events or changes in circumstances indicate that the goodwill may be impaired (IASB 2004c, IAS 36 para. BC131G).

Once acquired goodwill has been included in the accounting records, the next decision is how to deal with it. Should it be immediately expensed? Or periodically amortized? Or subject to impairment? These three options have been mandatory under different accounting regimes and periods, but impairment-only is the one currently in force and the one that provides managers with greater discretion.

The changes that have taken place in Spain reveal the disparity of criteria surrounding the accounting treatment of goodwill. When Spain joined the EU in 1986 (European Economic Commission at the time), its accounting rules had to be modified in accordance with the European Directives. Thus, the general accounting plan (GAP) was modified in 1990 and the amortization of goodwill in a maximum period of 10 years was included, although impairment should be recorded to recognize additional expenses if necessary. It has to be noted that goodwill was previously subject to impairment-only if it suffered a reduction in value (as now happens). At the end of the 1990s, the 10-year amortization period was increased to 20 years. In 2007, following the IFRS criteria, a new GAP—to be applied to individual accounts—returned to the initial model: no amortization but impairment.

Goodwill accounting is strongly related to the accounting of business combinations to be used after M&A take place. We therefore believe that it is convenient to consider the changes that simultaneously occurred in the recording of these transactions. Prior to the implementation of IFRS 3 (IASB 2004a), not only IAS 22 (IASC 1998), but also the accounting standards in most countries, established the purchase method for recording business combinations which required recognition of the acquisition premium as goodwill and a recording of the acquired firm’s net assets at their fair market value. But when certain criteria were met, firms could also use the pooling-of-interests method; under this method any premium was ignored and the acquired firm’s net assets were consolidated at their existing book value. Thus, only the purchase method gave rise to the goodwill acquired, which subsequently had to be amortized systematically. As a consequence of the additional amortization, post-merger consolidated earnings under purchase accounting were usually lower than those reported under pooling. Because earnings is a key metric used to evaluate firm and managerial performance, managers of acquiring firms usually preferred the pooling-of-interests method. Moreover, by providing a higher consolidated book value, the purchase method often resulted in a lower return-on-

equity (ROE) and market-to-book (M/B) ratio, which are two other key metrics frequently used for the purposes mentioned above (Ayers et al. 2000). Consistent with these attitudes, Hopkins et al. (2000) find that analysts' stock price judgments are lowest when a company applies the purchase method and amortizes the acquisition premium.

Prior research suggests that firms try to avoid this accounting method by structuring transactions to qualify for the pooling-of-interests method (Lys and Vincent 1995; Ayers et al. 2000). Moreover, the European Financial Reporting Advisory Group (EFRAG) indicates in its endorsement advice about IFRS 3⁴ that it "has been applied in the past to business combinations that were in many cases acquisitions to avoid goodwill amortization costs and the restatement of assets and liabilities at fair values."

In line with the USGAAP, IFRS 3 banned the pooling-of-interests method and eliminated the amortization of goodwill. In fact some authors suggest that the elimination of the amortization request was, to a certain extent, a concession to firms that did not agree with the imposition of the purchase method to all business combinations: the so-called pro-poolers (Cheng et al. 2005; Gowthorpe and Amat 2005;⁵ Ramanna 2008).

The impairment-only approach has been criticized because of the procedure's perceived lack of reliability—a valid criticism, given the measurement difficulties. IAS 36 requires that separate assets with an indefinite life—meaning that there is no foreseeable limit to the period over which the asset is expected to generate net cash flows for the entity—be tested for impairment. As goodwill cannot be tested separately, however, it must be allocated to the individual CGU or group of CGUs that benefit from the acquired goodwill (IASB 2004b, IAS 36, para. 80). The carrying amount of the CGU, including goodwill, must be compared annually with its recoverable amount—the higher of its fair value less costs of disposal and its value in use, which is the present value of the future cash flows. If the difference is positive, the loss must be allocated first to goodwill and then to the remaining assets on a pro-rata basis. The big issue lies in determining the recoverable amount of the CGU. It requires numerous estimates that are largely uncertain and subjective, and entails the

determination of an appropriate discount factor. In the unlikely scenario that the firm equals the CGU, the exercise may be relatively simple, as the fair value estimation could be the market value of the outstanding shares (if larger than value in use). The normal situation, however, is that the firm comprises several units and that goodwill must be allocated to each of them. This state of affairs makes the process much more complicated, because the units lack market value (Watts 2003).

Literature Review and Hypotheses Development

The Information Content of the Impairment-Only Approach

Leaving aside the simultaneous elimination of the pooling method, the non-amortization of goodwill has been justified from various perspectives. The amortization has been questioned conceptually, given the impossibility of estimating its useful life, implying that the systematic amortization amount is an arbitrary figure. In Henning and Shaw's (2003) research, based on a sample of US acquisitions, this length of useful life was an opportunistic decision. In their study, shorter lives were chosen by the firms with earnings growth that more than offset the additional charges, whereas acquisitions with few synergies tended to choose longer periods. Yet, in a study of New Zealand firms, the choice of economic life over which to amortize goodwill captured the underlying economics; high IOS firms amortized goodwill over a longer period than low IOS firms did (Bradbury et al. 2003). Most of the arguments used to justify this decision derive from empirical research that follows an informational perspective and highlights the critical role of goodwill and the lack of relevance of its amortization in the USA (Henning et al. 2000; Jennings et al. 2001; Moehrl et al. 2001) and other countries (Amir et al. 1993; Barth and Clinch 1996; Giner and Pardo 2007).

Perhaps more central to the debate is the large number of academic papers that examines the information content of the impairment procedure. Although most of them confirm the advantages of the impairment-only approach established in the USGAAP (Hirschey and Richardson 2003; Cheng et al. 2005; Lapointe-Antunes et al. 2009; Xu et al. 2011; Lee 2011) and in the IFRS (Chalmers et al. 2008; Liberatore and Mazzi 2010), there are exceptions. Regarding the USA, Bens et al. (2011) confirm the information content of goodwill write-offs, but the negative reaction attenuates after Statement of Financial Accounting Standards (SFAS) 142, consistent with the SFAS 142 critics' claims that fair value tests are easier for managers to manipulate and their outcomes are

⁴ EFRAG advises the EU prior to the adoption of IFRS (see Richardson and Eberlein 2011). The IFRS 3 endorsement letter is available at http://ec.europa.eu/internal_market/accounting/committees/efrag_endorsement_advices_en.html.

⁵ These authors discuss the adoption of SFAS 141 and SFAS 142 as a case of macro-manipulation and maintain: "In order to be able to introduce the standard eliminating pooling FASB had to make a major concession by removing the requirement to amortize goodwill, thus creating an opportunity for some creative earnings management at the individual company level" (Gowthorpe and Amat 2005, p. 60).

less informative to investors. Hayn and Hughes (2006) find that goodwill write-offs lag behind the economic impairment of goodwill. Although their main results refer to the period prior to the introduction of SFAS 142, they can be generalized to goodwill as reported under SFAS 142. Lee (2011) takes a different perspective on the usefulness of the impairment approach, by suggesting that goodwill and goodwill charges can predict cash flows. His results confirm an improvement in predictability after SFAS 142. Finally, the results of Morricone et al. (2009) are noteworthy, based as they are on Italy—a country with accounting traditions, enforcement and other institutions similar to those of Spain. They report a decrease in the value relevance of goodwill and a negative effect of the impairment loss after the adoption of IFRS. In their view, this situation may suggest that the impairment test and the greater discretion that followed may lead to more opportunistic behavior among managers in countries with weaker corporate governance and enforcement systems.

The difficulties related to the impairment procedure and the ways in which these difficulties might have affected the market valuation of the losses have been the subject of study as well. After a detailed reading of the annual Form 10-K filings made to the US Securities and Exchange Commission, Comiskey and Mulford (2010, p. 765) conclude, “We often noted the need for the use of estimates and the possibility that these estimates might be managed to avoid goodwill impairments.” In a related study that examined impairment practices through responses to a questionnaire sent to all Danish-listed companies that recognize goodwill, it is argued that

some firms do not define a CGU and hence do not comply with IAS 36. We also find inconsistencies in the way firms estimate recoverable amounts. Areas of concern include calculating the pre-tax discount rate, adjusting for risk and estimating the cash flow in the terminal period (Petersen and Plenborg 2010, p. 421).

Similarly, Carlin and Finch (2010) find evidence consistent with opportunism in the selection of discount rates in a sample of Australian and New Zealand firms that apply IFRS.

In summary, the extent to which investors value goodwill impairment may depend on the exercise of discretionary judgment by managers, within the parameters established in the accounting standards in allocating the cost of the business transaction to the different acquired elements and applying the impairment test. In the next section, we focus on the literature on incentives vs. underlying economics to explain the impairment decision—the key issue in this article.

The Determinants of the Impairment Decision

As discussed, the impairment-only approach has frequently been associated with earnings management. Healy and Wahlen (1999) provide what is probably the most-quoted definition of this practice

Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on accounting numbers (Healy and Wahlen 1999, p. 368).

We concur with Fischer and Rosenzweig (1995) and Gowthorpe and Amat (2005), who state there are ethical ambiguities associated with this practice. Nevertheless, and despite the prior definition, Healy and Wahlen (1999, p. 369) admit that “managers can also use accounting judgment to make financial reports more informative for users.”

The asset impairment request has been embedded in the historic accounting model, and although it is not an easy task to disentangle whether firms act in an opportunistic way or reflect the underlying economics of the business when recording impairment losses, some authors have tried to answer the question. Reporting incentives, such as debt contracting, “big bath”⁶ and income smoothing seem to be the main reason for asset impairment in the USA (Zucca and Campbell 1992; Francis et al. 1996; Riedl 2004), but Rees et al. (1996) conclude that the write-downs are credible signals about the reduction in the value of assets.

Now we turn to the determinants of the goodwill impairment decision. Because the non-amortization policy was first established in the USA, most of the early papers refer to that environment. The introduction of IFRS in 2005 has led to further research in Australia and the EU. The results are somewhat contradictory; they confirm that both opportunistic motivations and informative reasons direct managers’ decisions about the impairment.

Regarding the USA, Sevin and Schroeder (2005) conclude that SFAS 142 allowed companies to engage in earnings management; their results indicate that a large proportion of small firms reported negative earnings, consistent with a big-bath strategy. This is a surprising result, given the literature suggesting that large firms use big bath more than small firms do (Elliott and Shaw 1988). Jordan et al. (2007) confirm the big-bath behavior associated with

⁶ The big-bath strategy consists of a one-time overstatement of charges against income to reduce assets, which reduces future expenses and increases future income accordingly. The expectation is that the loss is discounted in the market by analysts and investors who will focus on future earnings.

goodwill write-offs in the transition period of SFAS 142, and Beatty and Weber (2006) show that contracting and market incentives affect the decision to take a goodwill write-off during that period, confirming that managers preferred reporting such losses below the line—which is no longer allowed. Li and Sloan (2011) conclude that goodwill impairment does not reflect the economics of the business, as firms act opportunistically and belatedly recognize their losses; in their view the new impairment rules in SFAS 142 are ineffective in soliciting timely impairments.

Ramanna and Watts (2012) have analyzed a sample of US firms with market indications of goodwill impairment. Their results are consistent with managers avoiding timely goodwill write-offs in circumstances in which they have agency-based motives to do so—particularly chief executive officer compensation and reputation and debt-covenant violation concerns. Masters-Stout et al. (2008), Brochet and Welch (2011), and Zang (2008) have all confirmed that managers' incentives influence their propensity to impair goodwill in the USA.

Despite the results of previous studies, Henning et al. (2004) found that write-offs are associated with a firm's future performance, and suggest that SFAS 142 provisions are likely to reduce the firm's ability to delay goodwill write-offs. Godfrey and Koh (2009) conclude that, after SFAS 142, goodwill impairment is negatively associated with the existence of IOS, which represents future projects impounded in the market prices. Their deduction lends support to the contention that the impairment-only approach allows firms to reflect their underlying economic attributes. Impairment is related to a reduction in future cash flows, although there is some delay in the recognition of losses (Jarva 2009). Furthermore, Jarva analyzes a sample of US companies that do not register the impairment and is unable to confirm that they act opportunistically. Yet, the findings of Li et al. (2011) suggest that US companies may have used their managerial discretion to avoid recognizing losses.

Turning now to the IFRS environment, Chalmers et al. (2011) consider the relationship between impairment and decline in IOS in Australia. They compare the pre-IFRS period with the post-IFRS period, and concur with Godfrey and Koh (2009) that the impairment charges are a better reflection of the underlying economic attributes of goodwill than amortization charges are. Stokes and Webster (2009) extend the Chalmers et al. (2011) analysis by examining the influence of audit quality, confirming the positive role of the Big 4 accounting firms. By considering the impact of the global financial crisis on a firm's behavior during the financial crisis in Australia, Vanza et al. (2011) found that leverage was associated with recognized impairment according to IFRS 3.

Authors who refer to European firms applying IFRS suggest that the new treatment is conducted opportunistically and is primarily linked to recent chief executive officer changes and tenure, income smoothing and big-bath reporting behaviors (AbuGhazaleh et al. 2011; Hamberg et al. 2011; Saastamoinen and Pajunen 2012). These three studies refer to market-based countries: the UK, Sweden, and Finland, respectively. Finally taking a small sample of 47 EU firms with symptoms of impairment, Verriest and Gaeremynck (2009) find that better-performing firms and firms with stronger corporate governance quality, as well as large firms, engage in goodwill impairment.

Hypotheses Development

Our hypotheses refer to the extent of managerial discretion. It is assumed that managers will use the discretion permitted in IFRS 3 in deciding not only if they will impair goodwill, but also about the magnitude of the impairment—after controlling for the actual economic impairment of goodwill. We consider the incentives that have proved influential in the prior literature: leverage, big bath, and income smoothing—which are our surrogates for the managers' unethical behavior—as long as they contradict the objective of the accounting standard setters that are providing unbiased information about the underlying economics of the firms.

It is expected that highly leveraged firms are less likely than other firms to record goodwill impairment losses that will reduce both earnings and total assets in order to avoid costly violations of debt covenants (Riedl 2004; Beatty and Weber 2006; Zang 2008). An alternative argument posits that debt holders are likely to scrutinize the value of the assets of highly leveraged firms—a move that may act as a disciplining device against opportunism and force the recognition of existing impairments that reflect the underlying performance of the firm (Strong and Meyer 1987; Elliott and Shaw 1988). Given these competing arguments, we establish a non-directional hypothesis, as did AbuGhazaleh et al. (2011):

H1 There is a significant association between the level of debt and (a) the decision to report goodwill impairment losses and (b) the magnitude of the impairment.

There is some evidence that managers use the discretion allowed by accounting standards to decide about recording losses, by taking big-bath charges or by smoothing the earnings figure when they have incentives to do so (Zucca and Campbell 1992; Francis et al. 1996; Riedl 2004; Jordan et al. 2007; AbuGhazaleh et al. 2011; Brochet and Welch 2011; Saastamoinen and Pajunen 2012). According to the Kirschenheiter and Melumad's (2002) model, these two strategies are part of an equilibrium reporting strategy, in

which the sign and the amount of the earnings figure should be considered. In both cases, these reporting behaviors maximize the value of the firm.

Next, we refer to the two complementary strategies and state our hypotheses.

The big-bath strategy consists of recording discretionary losses when firms have already experienced bad performance, and allows managers to “save up” losses for the future. By undertaking this strategy, they signal investors that “bad times” are behind them and better times will follow (Zucca and Campbell 1992). Furthermore, according to Kirschenheiter and Melumad (2002), if the news is sufficiently bad, managers have incentives to underreport earnings by the maximum amount possible, and to take a big bath—not only to increase earnings in the future, but also to reduce the inferred precision of the current earnings number, which also reduces its value for investors. This discussion results in the following hypothesis:

H2 There is a significant positive association between firms with abnormally low pre-impairment earnings and (a) the decision to record goodwill impairment losses and (b) the magnitude of the impairment.

Smoothed earnings patterns fit with the desire to have a steady and predictable rate of earnings growth, which is perceived as desirable by managers because of possible management incentive plans or under the premise that the market will perceive the investment as less risky, and its price will subsequently increase (Zucca and Campbell 1992). Kirschenheiter and Melumad (2002) agree that managers wish to report higher earnings than they have done in the past in order to increase firm value; but they also argue that precision is associated with earnings surprises—the greater the surprise the lower the precision. Thus, managers tend to smooth earnings if the news is good, as this action increases the value attached to the earnings figure. This discussion leads us to posit the following hypothesis:

H3 There is a significant positive association between firms with abnormally high pre-impairment earnings and (a) the decision to record goodwill impairment losses and (b) the magnitude of the impairment.

Wilson (1996) argues that the credibility of the research findings about assets-write-off studies depends on the extent to which the experimental design controls for economic impairment; otherwise too much emphasis is given to manipulation at the cost of the economic content of reported numbers. We control for the existence of actual economic goodwill impairment that should be recorded if there is deterioration in the economic performance of the CGU. As managers' expectations are not observable, and because there is no public information about the CGU, our

study follows previous researchers (Francis et al. 1996; Riedl 2004; Beatty and Weber 2006; Lapointe-Antunes et al. 2009; AbuGhazaleh et al. 2011; Vanza et al. 2011) by using several empirical proxies to capture the economic impairment of *firm-wide* goodwill: ROE, market return, M/B, size of goodwill, and goodwill impairment propensity. All these variables are measured at the firm level, as described in the next section.

Sample and Model Development

Sample

The population under study consists of Spanish-listed companies; the period of analysis covers the years 2005–2011, with the period 2000–2004 serving as a benchmark. Our initial sample comprises 1,807 firm-year observations in 167 companies. We removed observations with negative equity and those without goodwill in their balance sheets at the beginning of the fiscal year, bringing the sample to 1,003 firm-year observations, of which 340 observations predate 2005 (the mandatory application of IFRS) and 663 correspond to the later period when goodwill impairment is the normal practice according to IFRS. Of these, the 118 observations that have goodwill impairment in the profit and loss account constitute the study sample, and the remaining 545 form the control sample.

Data on goodwill impairments and other firm-specific financial variables are collected from the ThomsonOne database, but are supplemented by the firms' annual reports when necessary.

Table 1 shows the annual observations of the study sample; not surprisingly, the number of observations with impairment has gradually increased since 2008, so that 2007 had the lowest (11) and 2011 the highest (23) figures. In terms of industry representation, we distinguished five groups in the Global Industry Classification Standard: energy, materials and utilities; industrials; consumer discretionary, consumer staples and health care; financials; and information technology and telecommunication. Two groups together accounted for more than half the study sample: consumer discretionary, consumer staples and health care (32 %), and financials (31 %).

Goodwill significantly increased on the balance sheets through the wave of M&A and the favorable economic situation at the beginning of the period of study, accompanied by the new accounting treatment. According to the Institute of Mergers Acquisitions and Alliances (IMAA) the value of M&As announced in Spain increased from about 25 billion € in 2002 to 200 billion € in 2006, and went back to about 25 billion € in 2009 (see Appendix 2). As shown in Table 2, goodwill comprised 5.4 % of total

Table 1 Number of observations with goodwill impairment and goodwill

Year	2005	2006	2007	2008	2009	2010	2011	Total
Firms with GWI	16	14	11	14	19	21	23	118
Firms with GW	99	97	98	95	91	92	91	663
%	16.16	14.43	11.22	14.74	20.88	22.83	25.27	17.80

Table 2 Comparison between pre-IFRS and post-IFRS

Variables	Mean (pre-IFRS) 2000–2004	Mean (post-IFRS) 2005–2011
Goodwill/total assets	0.054	0.100
Amortization and impairment of goodwill/goodwill	0.159	0.029
Amortization and impairment of goodwill/total assets	0.003	0.001
Total assets (EUR billion)	14.600	28.700
N	340	663

assets in the pre-IFRS years, increasing to 10 % in the post-IFRS period. As with Hamberg et al. (2011), the new accounting policy had a positive impact on net income; in the pre-IFRS period, amortization (and possible impairment) represented 15.9 % of goodwill, whereas the average impairment loss in the post-IFRS period is 2.9 %. If we consider only those firms that deteriorated goodwill, however, the figure increases up to 16.6 % (non-tabulated data). This result suggests that, on average, companies attribute greater persistence to goodwill than they did in the past. Likewise, the ratio amortization and impairment of goodwill to total assets decreased from 0.3 to 0.1 %; although it was 1 % in the group that impaired (non-tabulated data). The average size of firms under study nearly doubled from the pre-IFRS period to the post-IFRS period.

Variables and Models

We examined both the decision to impair goodwill and then, conditional upon recording the impairment, the amount of goodwill that was actually taken as an impairment loss. Because the decision to impair is a dichotomous choice, we employed a probit regression to assess the probability of firms impairing goodwill (Beatty and Weber 2006; Hayn and Hughes 2006; Hamberg et al. 2011; Saastamoinen and Pajunen 2012). The amount of goodwill that was actually impaired was examined using an OLS regression (AbuGhazaleh et al. 2011; Beatty and Weber 2006; Saastamoinen and Pajunen 2012). Statistics are based on Huber and White, as they are robust estimators. Given that the model of interest is estimated on a subsample of companies that have goodwill impairment, we need to control for possible sample selection bias. The

standard approach is the procedure developed by Heckman (1979), which introduces a new independent variable in the treatment equation of interest. This new variable is the inverse of the Mills ratio or Heckman's λ and accounts for possible selection bias. This variable is calculated in a first step, using a probit model that estimates the probability of taking the treatment for all firms in the sample.⁷ The researcher must choose *exclusion restrictions*, requiring identification of the variable(s) in the first stage model—the probit—to be excluded from the second stage model (Lennox et al. 2012).⁸ Later, when we refer to the explanatory variables of the OLS, we provide further details about the excluded variables.

Explanatory Variables of the Impairment Decision: Probit Model

Regarding the variables that consider managerial discretion suggesting unethical behavior, we have included a leverage ratio (LEV): total liabilities divided by total assets. Our research differs from other studies in which only debts are included in the numerator (Beatty and Weber 2006; AbuGhazaleh et al. 2011). We widened the definition of debts, because Spanish firms rely upon trade creditors for medium-term financing, and including this financing in the ratio provides a clearer picture of the real leverage of firms.

Through BIGBATH, we tried to determine if the managers had reasons to anticipate any impairment loss that would distract attention from their firms and benefit future periods. Riedl (2004) has confirmed that write-offs reported after SFAS 121 on *Accounting for the Impairment of Long-Lived Assets* are less a reflection of the firms' underlying economic factors, as they follow a big-bath strategy that captures their managers' opportunistic behaviors rather than providing their private information. Following Brochet and Welch (2011), we considered two conditions to differentiate between firms that might or

⁷ This approach provides consistent, asymptotically efficient coefficient estimates despite the correlation of the residuals across the two processes—the decision to have a goodwill impairment and the equation of interest.

⁸ In the absence of exclusion restrictions, the results for the inverse Mills ratio depend entirely on its nonlinearity; this aspect is an issue because theory rarely suggests what the correct functional form is. Thus, the coefficients of the variables included in both models would not be properly estimated due to multicollinearity problems when there are no variables excluded in the OLS (Lennox et al. 2012).

might not follow a big-bath strategy; thus our indicator is 1 when pre-impairment earnings are negative and lower than the previous year's earnings (if neither of these conditions exist, the indicator is 0). Although the existence of current losses could be seen as a reason to record an impairment, this is not what the impairment test states; as explained previously, it should be based on future expectations.

The smoothing literature suggests a positive correlation between pre-impairment earnings and goodwill impairment. The claim here is that managers record an impairment to avoid big surprises about positive earnings.⁹ SMOOTH incorporates two conditions as well: pre-impairment earnings should be positive and larger than the previous year's earnings, in which case the variable takes that value deflated by total assets (otherwise 0).

BIGBATH and SMOOTH are consistent with Kirschenheiter and Melumad's (2002) model, which is based on the assumption that under conditions of sufficiently bad news, managers have incentives to under-report earnings by the maximum amount; when there are profits, however, they tend to report higher earnings but avoid abnormally high earnings. The expected sign of both variables is positive.

We included some control variables in the regression. The size of goodwill deflated by total assets suggests delayed impairment decisions by managers (Li and Sloan 2011), or simply that the relative amount exposed to the impairment test is greater (Zang 2008). We expected a positive association between this variable (GW) and the dependent variable. We also used several ratios to capture the underlying economics of the firm. To avoid a mechanical relationship between goodwill impairment and the accounting figures, we have adjusted them by goodwill impairment, and ratios are calculated "as if" there has been no impairment. We included accounting profitability (ROE) as the summary measure of accounting performance, assuming that in firms that are performing well, it will be less likely that the triggering impairment events will force them to recognize an impairment loss (AbuGhazaleh et al. 2011; Chalmers et al. 2011). The other two ratios—market return (RET) and M/B ratio—take investors' perceptions about the firm into account, which in some way reflects the IOS of the firm (Godfrey and Koh 2009; Chalmers et al. 2011). We expected a negative association between each of these variables (RET and M/B) and the dependent variable.

In addition, we added an indicator variable that captures the propensity to recognize goodwill impairment (PROP). According to the rules established in IFRS 3, if there were

only one CGU, it would be reasonable to expect an impairment if market capitalization were below the carrying amount of the unit. Thus, PROP takes a value of 1 if market capitalization is lower than the adjusted net equity (0 otherwise) (Beatty and Weber 2006). Similarly, Verriest and Gaeremynck (2009) and Ramanna and Watts (2012) assume that firms have symptoms of impairment when this happens. So, we expected a positive association between propensity and the dependent variable.

To control for other aspects that may influence the decision—the existence of more efficient corporate governance mechanisms that reduce opportunism, for example—we have considered two more variables: SIZE, measured as the natural logarithm of total assets, which can also proxy for the ability of the firm to follow the provisions established in IFRS 3 (Ramanna and Watts 2012; Stokes and Webster 2009; AbuGhazaleh et al. 2011; Chalmers et al. 2011); and AUDITOR, if the auditor is a Big Four auditing firm, in which case it receives a value of 1 (0 otherwise) (Stokes and Webster 2009; Saastamoinen and Pajunen 2012). The expected sign of both variables is positive. Finally, we added four indicator variables, INDUSTRY i , to control for the industry effect; they take the value of 1 if the observation belongs to industry i and 0 if it does not.

The following model is used to implement the probit analysis:

$$\begin{aligned} \text{GWI} = & \beta_0 + \beta_1 \text{LEV} + \beta_2 \text{BIGBATH} + \beta_3 \text{SMOOTH} \\ & + \beta_4 \text{GW} + \beta_5 \text{ROE} + \beta_6 \text{RET} + \beta_7 \text{M/B} \\ & + \beta_8 \text{PROP} + \beta_9 \text{SIZE} + \beta_{10} \text{AUDITOR} \\ & + \sum_i \beta_{11i} \text{INDUSTRY}_i + \varepsilon \end{aligned} \quad (1)$$

where GWI = indicator variable that takes a value of 1 if there is a goodwill impairment loss in year t (0 otherwise); LEV = total liabilities/adjusted total assets at time t ; BIGBATH = indicator variable that takes a value of 1 if pre-impairment earnings are negative at time t and lower than earnings at time $t - 1$ (0 otherwise); SMOOTH = the difference between pre-impairment earnings at time t and earnings at time $t - 1$ deflated by total assets at time $t - 1$, if both pre-impairment earnings at time t and the difference are positive (0 otherwise); GW = goodwill deflated by total assets at the end of $t - 1$; ROE = adjusted return on equity for year t ; RET = market return for the 12-month period $t - 1$ to t ; M/B = market value of equity divided by adjusted book value of equity at the end of t ; PROP = indicator variable that takes a value of 1 if market capitalization is lower than adjusted equity at t (0 otherwise); SIZE = natural logarithm of adjusted total assets at time t ; AUDITOR = indicator variable that takes a value of 1 if a Big Four auditing firm (0 otherwise); INDUSTRY i = indicator variable that takes a value of 1 if the firm belongs to industry i (0 otherwise).

⁹ Income smoothing is normally seen as an instrument for reducing transparency, but, as Chih et al. (2008) have noted, some scholars take the opposite view, arguing that more valuable information is conveyed to uninformed investors by lowering earnings volatility.

Explanatory Variables of the Impairment Amount: OLS Model

As explained previously, in order to follow econometric requirements, we identified exogenous independent variables from the first stage that could be validly excluded from the second stage—the *exclusion restrictions*—so the coefficients of the variables in the two models are identified separately. The independent variables, therefore, are those used in the previous analysis, except that the M/B ratio and the propensity variable have been replaced by EXPECTEDGWI, based on Beatty and Weber (2006). This variable is the difference between the firm's adjusted book value of equity and the market value of equity scaled by goodwill at the beginning of the period. If the market value of equity is greater than the book value of equity, the variable is set equal to 0. If the difference between the book value of equity and the market value of equity is greater than the amount of goodwill, then the entire goodwill balance is expected to be impaired, and the variable is set equal to 1 (we do not allow the expected goodwill impairment to exceed the amount of goodwill). We have also excluded SIZE from this second analysis, under the assumption that once a firm has decided to impair, the impairment test has been applied, so the cost consideration should not affect the decision about the amount of the impairment.

We employ the following model:

$$\begin{aligned} \text{GWILoss} = & \beta_0 + \beta_1 \text{LEV} + \beta_2 \text{BIGBATH} + \beta_3 \text{SMOOTH} \\ & + \beta_4 \text{GW} + \beta_5 \text{ROE} + \beta_6 \text{RET} \\ & + \beta_7 \text{EXPECTEDGWI} + \beta_8 \text{AUDITOR} \\ & + \sum_i \beta_{9i} \text{INDUSTRY}_i + \varepsilon \end{aligned} \quad (2)$$

where GWILoss = reported goodwill impairment loss (expressed as a positive number) deflated by total assets at the end of $t - 1$; EXPECTEDGWI = truncated variable that equals the difference between adjusted book value of equity and market value of equity at time t , if the difference is not greater than the amount of goodwill at time $t - 1$, divided by the amount of goodwill at $t - 1$, and equals 0 if the market value of equity exceeds the adjusted book value of equity. The other variables were described in (1).

Results and Discussion

Descriptive Statistics

Table 3 shows the descriptive statistics for the variables used in the analysis. Because of the lack of data for some variables and the elimination of outliers, the number of observations was reduced to 556, with the exception of the

auditor variable, which had 538 observations. Although, according to an expectation model based on PROP, 23 % of our sample firms should have recorded goodwill impairment, only 19 % did so. The expectation model suggests that the mean goodwill impairment over the goodwill balance (EXPECTEDGWI) should be 17 %; but we found it to be 3 % (non-tabulated data). Firms are highly leveraged, with a mean ratio of 71 %.

Table 4 reports the mean of the variables separating between firms that impair and do not impair goodwill, as well as the results of the two tailed t test of difference in means. LEV is significantly larger in the group that impairs 75 % (70 % in the other group). BIGBATH is also significantly larger in the impairment group: 18 % compared to 11 % in the non-impairing group; but there are no statistically significant differences for SMOOTH. As for the amount of goodwill relative to total assets, the difference between firms that recognize impairment (11.2 %) and those that do not (9.3 %) is significant at 10 %. The ratios that capture the accounting profitability (ROE) of the two groups are not significantly different. Recall that ROE has been adjusted for those firms that impaired, the non-adjusted one is significantly lower: 3.4 % (non-tabulated data). The differences in the ratios that capture market information are large, however, stock returns being negative in the impairing group (−8.9 %) and positive in the non-impairing group (2.9 %). The M/B is 1.7 for the impairing and 2.8 for the non-impairing group. PROP is significantly higher in the group that recognizes the impairment (0.35) than for the group that does not (0.20). Firms that deteriorate are significantly larger (EUR 98.500 billion total assets) than the other group (EUR 17.300 billion). Firms that recognize impairment are not more or less likely to choose a Big 4 auditing company than are those firms that do not recognize impairment; approximately 92 % of the firms in both groups are serviced by Big 4 auditors.

As in Beatty and Weber (2006), Table 5 shows information about our expectations for the number of firms with goodwill impairment in the absence of opportunistic incentives—as based on the propensity variable, which assumes that the firm has only one CGU and its value in use is lower than the market value of equity (so this is the recoverable amount). The first row indicates that there are 429 firms with a market value of equity exceeding their adjusted book value of equity: firms not expected to recognize an impairment. Ultimately, 361 firms did not impair and 68 firms did, suggesting that roughly 16 % of firms not expected to impair actually did impair; the numbers do not change if the unadjusted book value is taken into account. To the extent that these firms have more than one CGU, however, it is more likely that they report goodwill impairment when the market value exceeds book value of

Table 3 Descriptive statistics

Variables	Mean	SD	Min.	Median	Max.	<i>N</i>
GWILoss	0.002	0.01	0.00	0.00	0.17	556
LEV	0.71	0.17	0.03	0.72	0.99	556
SMOOTH	0.01	0.03	0.00	0.001	0.27	556
GW	0.10	0.11	4.79e-06	0.05	0.60	556
ROE	0.11	0.26	-1.92	0.13	1.16	556
RET	0.007	0.49	-0.99	-0.03	3.80	556
M/B	2.63	2.92	0.03	1.76	20.80	556
EXPECTEDGWI	0.17	0.35	0.00	0.00	1.00	556
Total assets (EUR billion)	32.60	1.30e+11	0.022	2.07	1,250	556
Dichotomous variables	Proportion dummy = 1 (%)			Median	<i>N</i>	
GWI	18.88			0.00	556	
BIGBATH	12.41			0.00	556	
PROP	22.84			0.00	556	
AUDITOR	92.93			1.00	538	

GWILoss is firm i 's reported goodwill impairment loss (expressed as a positive number), deflated by total assets at the end of $t - 1$; LEV is the leverage as measured by total liabilities/adjusted total assets at time t ; SMOOTH is the difference between pre-impairment earnings at time t and earnings at time $t - 1$ deflated by total assets at $t - 1$, if the former is positive and the difference is positive (0 otherwise); GW is the carrying value of goodwill at the end of $t - 1$ deflated by total assets at time $t - 1$; ROE is the adjusted return on equity for year t ; RET is the market return for the 12-month period $t - 1$ to t ; M/B is the market value of equity divided by the adjusted book value of equity at the end of t ; EXPECTEDGWI is a truncated variable equal to the amount by which the adjusted book value of equity exceeds the market value of equity at time t , to the extent that this amount is not greater than the amount of goodwill at $t - 1$, and equal to 0 if the market value of equity exceeds the adjusted book value of equity, divided by the amount of goodwill at the beginning of the year t ; GWI is an indicator variable equal to 1 if the firm recorded a goodwill impairment loss in year t (0 otherwise); BIGBATH is an indicator variable that takes a value of 1 if pre-impairment earnings are negative at time t and lower than earnings at time $t - 1$ (0 otherwise); PROP is an indicator variable that takes a value of 1 if market capitalization is lower than adjusted net equity at t (0 otherwise); AUDITOR is an indicator variable that takes a value of 1 if it is a Big Four auditing firm (0 otherwise)

equity, as one unit could be impaired even if the whole firm is not. The second row indicates that 127 firms have market values below the adjusted book value: firms expected to recognize an impairment. Only 37 of these firms did impair, and 71 % failed to do so, suggesting that if these firms have one CGU, they do not measure the recoverable amount through their market value, but through their value in use, which depends on manager's estimations about the future. As long as they have more than one CGU, they make reporting unit decisions and goodwill allocation decisions that allow them to avoid goodwill impairment.¹⁰

Table 6 shows Pearson correlations for the explanatory variables used in the multivariate analyses, few of which are highly correlated: SIZE and LEV (0.531), and ROE and

BIGBATH (-0.534). The highest correlation is between EXPECTEDGWI and PROP (0.887), but this correlation does not present a problem, as these two variables are never in the same model. Nevertheless, we have computed the variance inflation factors, and the results do not suggest any multicollinearity problems.

Multivariate Regression Analysis

The third column of Table 7 shows the results of the multivariate probit regression to explain the impairment decision for the entire IFRS sample. Regarding the opportunistic variables, the only relationship significant at 5 % is BIGBATH, which confirms our Hypothesis 2 about the relationship between negative pre-impairment earnings and lower than last years' earnings on the one hand and impairing goodwill on the other. The other two hypotheses are not sustained, as neither LEV nor SMOOTH are significant, requiring us to reject both Hypothesis 1, which refers to the impact of debt level in the decision to impair, and Hypothesis 3 about the smoothing behavior.

The control variables GW and SIZE are highly significant at 1 %, suggesting that the amount of goodwill and the complexity and cost of the impairment estimation process

¹⁰ Under the extremely restrictive assumption that firms have only one CGU and that the market value of the outstanding shares captures its recoverable amount, this contingency analysis may imply a high level of noncompliance with the impairment test requirements. A similar conclusion was obtained by the European Securities and Markets Authority (ESMA) after analyzing the accounting practices of 235 issuers: "ESMA found that significant impairment losses of goodwill recognized in 2011 were limited to a handful of issuers, particularly in the financial services and telecommunication industry" (ESMA 2013, p. 3). The report is available at <http://www.esma.europa.eu/system/files/2013-02.pdf>.

Table 4 Comparison between observations with and without goodwill impairment

Variables	Mean (with GWI)	Mean (without GWI)	Mean difference <i>t</i> -test	<i>N</i>
LEV	0.748	0.702	-2.450***	556
BIGBATH	0.180	0.110	-1.728**	556
SMOOTH	0.0117	0.0115	-0.062	556
GW	0.112	0.093	-1.326*	556
ROE	0.078	0.118	1.282	556
RET	-0.089	0.029	2.606***	556
M/B	1.726	2.839	5.816***	556
PROP	0.352	0.199	-3.026***	556
EXPECTEDGWI	0.271	0.146	-2.932***	556
Total assets (EUR billion)	98.500	17.300	-3.152***	556
AUDITOR	0.923	0.930	0.278	538

*** 1 % significance, ** 5 %, * 10 %

LEV is the leverage as measured by total liabilities/adjusted total assets at time *t*; BIGBATH is an indicator variable that takes a value of 1 if pre-impairment earnings are negative at time *t* and lower than earnings at time *t* - 1 (0 otherwise); SMOOTH is the difference between pre-impairment earnings at time *t* and earnings at time *t* - 1 deflated by total assets at *t* - 1, if the former is positive and the difference is positive (0 otherwise); GW is the carrying value of goodwill at the end of *t* - 1 deflated by total assets at time *t* - 1; ROE is the adjusted return on equity for year *t*; RET is the market return for the 12-month period *t* - 1 to *t*; M/B is the market value of equity divided by the adjusted book value of equity at the end of *t*; PROP is an indicator variable that takes a value of 1 if market capitalization is lower than adjusted net equity at *t* (0 otherwise); EXPECTEDGWI is a truncated variable equal to the amount by which the adjusted book value of equity exceeds the market value of equity at time *t*, to the extent that this amount is not greater than the amount of goodwill at *t* - 1, and equal to 0 if the market value of equity exceeds the adjusted book value of equity, divided by the amount of goodwill at the beginning of the year *t*; AUDITOR is an indicator variable that takes a value of 1 if it is a Big Four auditing firm (0 otherwise)

Table 5 Frequency analysis

	Without GWI	With GWI	Total
Not expected to impair goodwill	361	68	429
Expected to impair goodwill	90	37	127
Total	451	105	556

Frequency table partitioning sample firms by whether they were expected to impair goodwill (or not) and by whether they did impair goodwill (or not). Firms are categorized according to whether or not their managers took impairment charges and if they were expected to take impairment losses based on the PROP variable for the whole period

influence the decision to conduct impairment, and that smaller companies are likely unable to implement fully the complex requirements of impairment reporting (Verriest and Gaeremynck 2009; Bens et al. 2011; Glaum et al. 2013). Moreover M/B, significant at 5 %, confirms that low

M/B firms are more prone to recording an impairment. Regarding the industry variables, the significance of two groups, INDUSTRY 3 (consumer discretionary, consumer staples, and health care) and INDUSTRY 4 (financials), confirms the convenience of controlling for this aspect.

We have applied the Heckman correction procedure to control for selection bias in the analysis of the amount of goodwill impairment; our results indicate that there is no such problem in our data. Consequently, we report the results of the OLS regression in Table 7, Column 4, without including the inverse of the Mills ratio as an additional independent variable. Contrary to the probit analysis, SMOOTH is significant at 10 %, suggesting that firms follow an income-smoothing strategy once they have decided to record goodwill impairment losses; the lack of significance of BIGBATH implies that firms do not follow a big-bath strategy when deciding the amount of the impairment. As for other control variables, GW and EXPECTEDGW are significant at 5 and 10 %, respectively, while industry variables are not.

As a robustness check, we have replicated the analysis using other proxies for BIGBATH and SMOOTH, and the results are basically consistent with those reported here. In particular, we first followed Saastamoinen and Pajunen (2012) and defined the big-bath indicator as 1 if earnings would have been negative in the absence of a goodwill impairment charge and 0 otherwise—a less restrictive view of the potential big-bath behavior. Second, following Francis et al. (1996), we defined the big bath as a truncated variable; if pre-impairment earnings are both negative and lower than the previous year's earnings, it takes the difference as the value (if any of these conditions are missing, the indicator is 0), deflated by total assets at *t* - 1. Third, we computed the smoothing variable as an indicator, so it takes a value of 1 if pre-impairment earnings are positive and larger than earnings at time *t* - 1 (0 otherwise). We have also estimated our models with panel data, and the results do not differ substantially from those reported here. Finally, we have confirmed that our results are not sensitive to the measurement date for the variables. Specifically, we measured leverage and propensity at the beginning of the year, and the results do not vary.

In essence, these results confirm that opportunistic reasons explain both the decision to impair and the decision about the amount of the impairment.

Further Analysis

Although our primary concern is with the determinants of goodwill impairment, we recognize that the results may be sensitive to particular time periods. We must note that the current economic crisis has strongly affected Spain; during the third quarter of 2008, for instance, the gross domestic product (GDP) contracted for the first time in 15 years.

Table 6 Pearson correlations

	LEV	BIGBATH	SMOOTH	GW	ROE	RET	M/B	PROP	EXPECTEDGWI	SIZE	AUDITOR
BIGBATH	-0.010										
SMOOTH	-0.215***	-0.173***									
GW	-0.218***	0.104**	0.098**								
ROE	-0.005	-0.534***	0.270***	-0.067							
RET	-0.0002	-0.204***	0.133***	-0.200***	0.290***						
M/B	0.096**	-0.061	0.048	-0.099**	0.201***	0.201***					
PROP	-0.025	0.213***	-0.042	0.097**	-0.306***	-0.378***	-0.366***				
EXPECTEDGWI	-0.017	0.198***	-0.022	-0.060	-0.259***	-0.336***	-0.331***	0.887***			
SIZE	0.531***	-0.207***	-0.125***	-0.264***	0.235***	0.002	-0.157***	0.045	0.041		
AUDITOR	0.073	-0.050	0.028	-0.131***	0.169***	-0.033	0.066	-0.024	0.016	0.237***	

*** 1 % significance, ** 5 %, *10 %

LEV is the leverage as measured by total liabilities/adjusted total assets at time t ; BIGBATH is an indicator variable that takes a value of 1 if pre-impairment earnings are negative at time t and lower than earnings at time $t - 1$ (0 otherwise); SMOOTH is the difference between pre-impairment earnings at time t and earnings at time $t - 1$ deflated by total assets at $t - 1$, if the former is positive and the difference is positive (0 otherwise); GW is the carrying value of goodwill at time $t - 1$ to t ; M/B is the market value of equity divided by the adjusted book value of equity at time t ; RET is the market return for the 12-month period $t - 1$ to t ; M/B is the market value of equity divided by the adjusted book value of equity at the end of t ; PROP is an indicator variable that takes a value of 1 if market capitalization is lower than adjusted net equity at time t (0 otherwise); EXPECTEDGWI is a truncated variable equal to the amount by which the adjusted book value of equity exceeds the market value of equity at time t , to the extent that this amount is not greater than the amount of goodwill at $t - 1$, and equal to 0 if the market value of equity exceeds the adjusted book value of equity, divided by the amount of goodwill at the beginning of the year t ; SIZE is the natural logarithm of adjusted total assets at time t ; AUDITOR is an indicator variable that takes a value of 1 if it is a Big Four auditing firm (0 otherwise). $N = 538$ observations

Table 7 Results of regressing goodwill impairment loss in the probit and OLS model

	Expected sign	Probit model	OLS model
Constant	?	-5.758***	0.019
LEV	(±)	-0.546	-0.036
BIGBATH	(+)	0.522**	0.003
SMOOTH	(+)	3.133	0.076*
GW	(+)	1.717***	0.074**
ROE	(-)	-0.058	-0.011
RET	(-)	-0.046	-0.002
M/B	(-)	-0.088**	
PROP	(+)	0.112	
EXPECTEDGWI	(+)		0.009**
SIZE	(+)	0.235***	
AUDITOR	(±)	-0.392	0.003
INDUSTRY 2	(±)	0.134	0.004
INDUSTRY 3	(±)	0.580**	0.001
INDUSTRY 4	(±)	0.625***	0.007
INDUSTRY 5	(±)	0.332	-0.006
Pseudo R ² /R ²		0.148	0.380
Obs.		538	104

*** 1 % significance, ** 5 %, * 10 %

Dependent variables: Probit model: GWI is an indicator variable equal to 1 if the firm recorded a goodwill impairment loss in year t (0 otherwise)

OLS model: GWILoss is firm i 's reported goodwill impairment loss (expressed as a positive number) deflated by total assets at the end of $t - 1$

Independent variables: LEV is the leverage as measured by total liabilities/adjusted total assets at time t ; BIGBATH is an indicator variable that takes a value of 1 if pre-impairment earnings are negative at time t and lower than earnings at time $t - 1$ (0 otherwise); SMOOTH is the difference between pre-impairment earnings at time t and earnings at time $t - 1$ deflated by total assets at $t - 1$, if the former is positive and the difference is positive (0 otherwise); GW is the carrying value of goodwill at the end of $t - 1$ deflated by total assets at time $t - 1$; ROE is the adjusted return on equity for year t ; RET is the market return for the 12-month period $t - 1$ to t ; M/B is the market value of equity divided by the adjusted book value of equity at the end of t ; PROP is an indicator variable that takes a value of 1 if market capitalization is lower than adjusted net equity at t (0 otherwise); EXPECTEDGWI is a truncated variable equal to the amount by which the adjusted book value of equity exceeds the market value of equity at time t , to the extent that this amount is not greater than the amount of goodwill at $t - 1$, and equal to 0 if the market value of equity exceeds the adjusted book value of equity, divided by the amount of goodwill at the beginning of the year t ; SIZE is the natural logarithm of adjusted total assets at time t ; AUDITOR is an indicator variable that takes a value of 1 if it is a Big Four auditing firm (0 otherwise); INDUSTRY i is an indicator variable that takes a value of 1 if it belongs to industry i (0 otherwise), where i goes from 2 to 5

Thus, we distinguish two sub-periods of prosperity and economic crisis in our sample period. Some of the literature suggests that managers' unethical behaviors escalate during critical periods; as a recession renders the business

Table 8 Results of the Tobit regression

	Expected sign	Total sample	Pre-crisis 2005–2007	Crisis 2008–2011
Constant	?	-0.112***	-0.036***	-0.096***
LEV	(±)	-0.016	-0.009	-0.021
BIGBATH	(+)	0.015**	0.006	0.017**
SMOOTH	(+)	0.121*	-0.021	0.182***
GW	(+)	0.074***	0.003	0.097***
ROE	(-)	-0.001	-0.002	0.0005
RET	(-)	-0.002	-0.002	-0.005
M/B	(-)	-0.003**	-0.001**	-0.004
PROP	(+)	0.004	-0.002	0.004
SIZE	(+)	0.004***	0.002***	0.003**
AUDITOR	(±)	-0.005	0.002	-0.014
INDUSTRY 2	(±)	0.002	0.001	0.004
INDUSTRY 3	(±)	0.011*	0.004	0.013
INDUSTRY 4	(±)	0.015**	0.0005	0.032**
INDUSTRY 5	(±)	0.001	0.001	0.005
Pseudo R ^{2a}		0.148	0.165	0.131
Obs.		538	213	325

*** 1 % significance, ** 5 %, * 10 %

Dependent variable: GWILoss is firm i 's reported goodwill impairment loss (expressed as a positive number) deflated by total assets at the end of $t - 1$

Independent variables: LEV is the leverage, as measured by total liabilities/total assets at time t ; BIGBATH is an indicator variable that takes a value of 1 if pre-impairment earnings are negative at time t and lower than earnings at time $t - 1$ (0 otherwise); SMOOTH is the difference between pre-impairment earnings at time t and earnings at time $t - 1$ deflated by total assets at $t - 1$, if the former is positive and the difference is positive (0 otherwise); GW is the carrying value of goodwill at the end of $t - 1$ deflated by total assets at time $t - 1$; ROE is the return on equity for year t ; RET is the market return for the 12-month period $t - 1$ to t ; M/B is the market value of equity divided by the adjusted book value of equity at the end of t ; PROP is an indicator variable that takes a value of 1 if market capitalization is lower than net equity at t (0 otherwise); SIZE is the natural logarithm of adjusted total assets at time t ; AUDITOR is an indicator variable that takes a value of 1 if it is a Big Four auditing firm (0 otherwise); INDUSTRY i is an indicator variable that takes a value of 1 if it belongs to industry i (0 otherwise), where i goes from 2 to 5

^a The pseudo R² has been calculated following Dhrymes' (1986) proposal for the Tobit case

environment more challenging for a majority of firms, they tend to report lower earnings (Lin and Shih 2002). Because investors do not value firms strictly on the basis of their reported earnings during such critical periods, managers in firms that perform poorly during recessions may have incentives to push earnings even lower by artificial means, in order to reserve earnings for the recovery phase of the business cycle, as the big-bath argument posits (Hayn 1995). Saastamoinen and Pajunen (2012) argue that the financial crisis increases uncertainty about cash flows, which should increase goodwill impairments, although

their results do not confirm this assumption. As there is a material tightening of bank-lending criteria during the crisis, highly leveraged firms have incentives to avoid losses and increase earnings, as Vanza et al. (2011) have found for Australian companies and Callao and Jarne (2011) have found for Spanish companies.

We have divided our sample into two sub-samples: euphoria, with 213 observations; and crisis, with 325 observations. To replicate the prior analysis, we should run an OLS regression with a very small sample, as only about 20 % of the firms recognized goodwill impairment. Instead, as AbuGhazaleh et al. (2011) and Hamberg et al. (2011) did, we used a multivariate Tobit regression that included all observations, with and without impairment.¹¹ The dependent variable takes the value of 0 if there is no impairment, and the amount of impairment deflated by total assets at the beginning of the year if the firm registered an impairment. We included the independent variables used in the probit model previously applied. For comparison, we also report the results for the total sample in Table 8, Column 3.

The variables that were significant in the probit regression remain significant in this analysis, as well as SMOOTH. Columns 4 and 5 in Table 8 report the results for euphoria and crisis, respectively, and confirm that the managers' behavior depends on the macroeconomic context. In fact, the results of the crisis period are driving the general results; during the pre-crisis or euphoria period, impairment losses are explained only by SIZE and M/B; whereas in the crisis period, unethical opportunistic behaviors and especially the smoothing variable (significant at 1 % and with the largest coefficient) are the main factors that explain the impairment decisions.

Concluding Remarks

A change in the accounting policy that replaced an established practice—the systematic amortization of goodwill by the impairment-only approach—has been and is subject to intense debate in academia and in the professional and regulatory worlds. The new policy is justified conceptually by the inability to determine the economic life of goodwill, which prevents the calculation of a reasonable amortization amount, and from the informational perspective based on a literature that questions the value relevance of the amortization. Given these arguments, it is assumed that the impairment-only approach will provide

¹¹ In the second stage, the sample sizes for the two subperiods are small, as there are few observations with impairment—33 and 71, respectively—which does not allow us to run a regression with 10 independent variables. We have performed a Tobit analysis as an alternative solution; it includes 213 and 325 observations in each of the two subperiods, although that does not allow us to separate the two decisions.

better information about the underlying economics of the firms. But, the difficulties in applying the impairment tests, the potential earnings manipulation due to managers' incentives and unethical managerial behavior favored by these aspects have all been advanced as criticisms of the new treatment. To the extent that managers use the flexibility inherent in the accounting standards in their decision about impairment to satisfy their own interests instead of communicating the financial information of the firms in a transparent and reliable way, it is assumed that they are not exhibiting ethical behavior (Gowthorpe and Amat 2005; Jo and Kim 2008; Choi and Pae 2011). It is therefore unclear, ex-ante, how the impairment-only approach has affected the characteristics of reported goodwill impairment losses following the adoption of IFRS 3.

Based on a final sample of 538 Spanish-listed firm-year observations corresponding to the period 2005–2011, we examined managers' use of discretion in deciding whether or not to impair goodwill and about the magnitude of the impairment. After controlling for the underlying economic factors of the firms, the empirical results reveal that managers are exercising discretion in the reporting of goodwill impairment losses. As for the opportunistic variables, BIGBATH and SMOOTH explain the decision to impair and the magnitude decision, respectively. These results suggest that managers record impairment losses when they have a bad year, but they are also consistent with the idea that managers prefer to have a steady earnings figure and impair goodwill in order to avoid earnings surprises. In our view, these results suggest that goodwill impairment is recorded following unethical behavior in order to achieve the desired net income. Additional analyses indicate that the macroeconomic environment influences this behavior, as it is during the crisis period that these variables appear to drive decisions. Firm size is an attribute that appears significant in all the analyses, suggesting that the cost and complexity of running the tests affect managers' decisions; thus larger firms appear to be more prone to recording an impairment and to impairing larger amounts than smaller firms are.

We are aware that our results may be difficult to generalize because they are based on one country—a country characterized by weak governance and enforcement systems. But they are useful in demonstrating how the impairment-only approach has been implemented in a country in which this issue has never been studied—a country that belongs to the EU group of continental countries that is bank oriented and characterized by a low enforcement regime. Having said that, prior research based on European countries that are market oriented—Finland, Sweden, and the UK—have also confirmed that IFRS 3 has been applied in a relatively opportunistic fashion.¹²

¹² Similarly, Reverte (2009) concludes that the factors influencing the corporate social responsibility disclosure practices of Spanish-listed companies are not significantly different from the factors that influence them in other environments.

Ultimately, these results may suggest that managerial behavior is relatively opportunistic and unethical in applying the impairment test; consequently, they have some policy implications and serve as evidence that could be used in the post-implementation review of IFRS 3. Another suggestion that comes indirectly from our analysis relates to the current revision of the Conceptual Framework by both accounting standard setters: FASB and IASB. It provides support to those who claim that some ethical values should be included there, and, as a first step, conveys the message that the Conceptual Framework, including the underlying objectives of financial reporting and qualitative characteristics of “good” accounting information— notions common to a number of ethical models—should be the first source of authoritative guidance for financial reporting and disclosure decisions rather than the last source (Frecka 2008).

Before concluding, we should refer to the limitations of the study. First, we want to point out that we are dealing with a highly subjective topic. Both the allocation and the valuation of acquired goodwill and its impairment are based on internal estimations that are not available in the annual accounts; nor are they part of the management discussion. Thus, it is extremely difficult—not only for researchers but also for investors—to appreciate the extent to which the recognition of impairment losses is capturing the real losses experienced by that goodwill. Because of the lack of market value, this situation is particularly exacerbated if there is more than one CGU, as usually happens—one may be performing badly, requiring impairment, while other sectors of the business are doing well. Second, because of the small sample size, we have not been able to perform some partitions by industry and period that could have added robustness to our results. Third, it would have been interesting to consider some firm governance variables as additional controls, as they could act as deterrents of unethical behavior.

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Appendix 1: Institutional Characteristics

	Spain	United Kingdom	European Union (*)
Bank—intermediate credit	0.82	0.33	0.45

	Spain	United Kingdom	European Union (*)
Equity funding—stock market capitalization	0.88	1.16	0.67
Equity funding—issuance of shares	0.01	0.02	0.01
Anti-directors' rights	4.00	5.00	2.60
Rule of law (1)	7.80	8.57	9.04
Rule of law (2)	1.14	1.68	1.50
Regulatory quality	1.18	1.72	1.42
Control of corruption	1.08	1.69	1.56

* The average values have been obtained from the available European countries for each indicator at the related time period

Bank—intermediate credit: bank credit to the non-financial companies as a percentage of GDP, which indicates the role of the banking system in channeling funds to non-financial corporations. Average of the period 2005–2011. *Source* Bijlsma and Zwart (2013)

Equity funding—stock market capitalization: stock market capitalization of listed firms as a percentage of GDP, which indicates the role of the market in channeling funds to non-financial corporations. Average of the period 2005–2011. *Source* Bijlsma and Zwart (2013)

Equity funding—issuance of shares: gross issuance of shares by listed firms as a percentage of GDP, which indicates the stock market activity. Average of the period 2005–2011. *Source* Bijlsma and Zwart (2013)

Anti-directors' rights: an index aggregating shareholder rights from company and commercial law which proxies for investor's protection. It ranges from 0 to 6, with lower scores for countries with less investor protection. *Source* La Porta et al. (1998). Available at <http://faculty.tuck.dartmouth.edu/rafael-laporta/research-publications>

Rule of law (1): assessment of the law and order tradition in the country, which proxies for enforcement. Scale from 0 to 10, with lower scores for less tradition for law and order. Average of the period 1982 and 1995. *Source* La Porta et al. (1998). Available at <http://faculty.tuck.dartmouth.edu/rafael-laporta/research-publications>

Rule of law (2): assessment of the perceptions in which agents have confidence and abide by the rules of society—particularly the quality of contract enforcement, property rights, the police, and the courts. It ranges between –2.5 and 2.5, with higher scores corresponding to better outcomes. Average of the period 2005–2011. *Source* Kaufmann et al. (2013). Available at www.govindicators.org

Regulatory quality: assessment of perceptions of the ability of government to formulate and implement sound policies and regulations that permit and promote private-sector development. It ranges between –2.5 and 2.5, with higher scores corresponding to better outcomes. Average of the period 2005–2011. *Source* Kaufmann et al. (2013). Available at www.govindicators.org

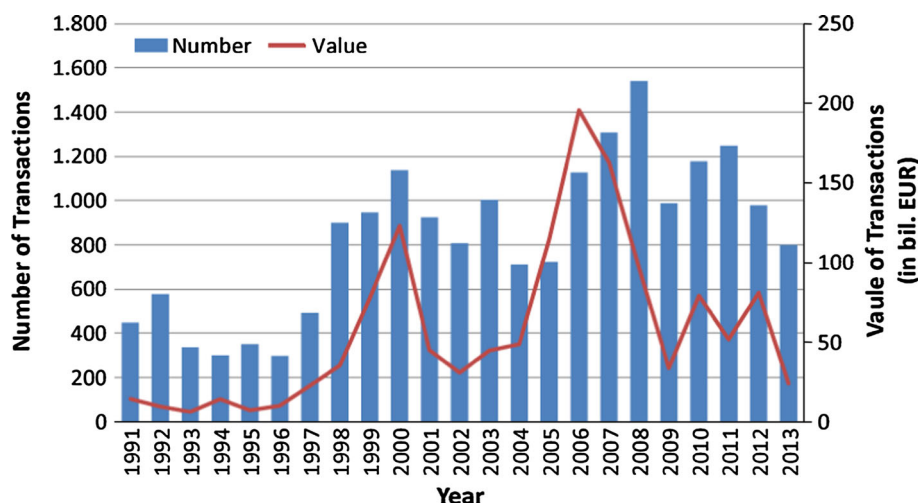
Control of corruption: assessment of the perceptions to which public power is exercised for private gain. It ranges between –2.5 and 2.5, with higher scores corresponding to better outcomes. Average of the period 2005–2011. *Source* Kaufmann et al. (2013). Available at www.govindicators.org

Appendix 2. Announced Mergers & Acquisitions in Spain

See Fig. 1.



Fig. 1 Analysis of Thomson Financial, Institute of Mergers, Acquisitions and Alliances (IMAA). Available at <http://www.imaa-institute.org/statistics-mergers-acquisitions.html>



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