Back to goodwill amortisation: impact of the 2016 Spanish regulation on the mispricing of listed firms

Fernando Ruiz-Lamas and David Peón
Universidade da Coruña, A Coruna, Spain

Abstract

Purpose – This article analyses the recent inverse transition from goodwill impairment to goodwill amortisation implemented in Spain in 2016. The authors contribute to the existing literature by describing their differing impact over goodwill and impairment figures and testing the impact of goodwill on balances over stock prices.
Design/methodology/approach – First, using a database with all Spanish non-financial firms with positive goodwill on their balance sheets, the authors describe the impact of the regulatory change over goodwill and impairment figures. Second, focussing on listed firms only, the authors study the impact of financial reporting of goodwill and impairment on stock prices.
Findings – Average goodwill per company and the share of goodwill over total assets significantly reduced after 2016, but the results cannot be easily extrapolated to listed firms due to lack of data. When testing the impact of potentially inflated goodwill balances on prices, the authors find that investors kept overvaluing firms with inflated goodwill balances also with the amortisation method.
Research limitations/implications – The lack of data for listed firms with goodwill in Spain makes it difficult to obtain statistically sound evidence, the results could be biased by the cultural traits of the country and related to the intensity of enforcement and monitoring.
Practical implications – This might suggest that the effects of the impairment method linger, so the authors conform to the interpretation that the systematic amortisation paired with a periodic impairment test may lead to accounting that better reflects the underlying economics of goodwill.
Originality/value – To the best of the authors' knowledge, there are no recent articles that analyse this new "turn-around" requiring again the systematic amortisation of goodwill.

Keywords Goodwill impairment, Goodwill amortisation, IFRS 3, IAS 36, DiD, Security mispricing
Paper type Research paper

1. Introduction

For decades, there has been controversy surrounding the accounting of goodwill, especially with regards to its impairment and amortisation. Both in the FASB and IASB environment there have been frequent regulatory changes, sharpening the debate. The first years of the 21st century saw the generalisation of impairment tests based on the premise that goodwill does not systematically lose value over time (Carvalho et al., 2016). In 2001, SFAS 142 imposed a fair-value-based impairment test that eliminated a periodic amortisation and a recoverability-based impairment test that were in force before. Likewise, in 2004, IFRS 3 Business Combinations and related amended version of IAS 36 Impairment of assets were issued, regulating the implementation of impairment tests on assets, including goodwill.

JEL Classification — M41, G32

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In 2012 the IASB cast doubt upon the application of impairment tests and opened the door to a further revision of the regulation. Later, the Directive 2013/34 of the European Union set that goodwill will be systematically amortised by non-listed firms and by any firms that, voluntarily, do not adopt the IAS/IFRS. In March 2020, the IASB published a discussion paper (IASB, 2020) on whether to introduce a sort of counterreformation of IAS 36 that might lead to the reintroduction of goodwill amortisation (Bagna *et al.*, 2023). In December 2022 added this project to its standard-setting programme. Based on the tentative decisions made in its 2022 meetings, impairment tests without systematic amortisation will prevail, notwithstanding the approval of new disclosure requirements for business combinations, and tentative improvements for the impairment test of cash-generating units containing goodwill in IAS 36.

In the academia the topic is booming: we identify in the Scopus database 109 empirical goodwill impairment studies from leading journals in accounting and finance in the past 8 years. Most studies suggest that goodwill amounts are often driven by managerial incentives, but there is no agreement on what the optimal degree of discretion should be (Amel-Zadeh *et al.*, 2021). They highlight validity problems in goodwill accounting research, and suggest avenues for future research, including taking the opportunity to analyse the implementation of new regulations.

Most academic literature has studied the introduction of impairment tests (e.g. André *et al.*, 2015; Cheng *et al.*, 2018). Also in Spain, Cavero-Rubio *et al.* (2021) have recently analysed the differences in goodwill figures of listed firms under both regulations. Their tests confirm that under the impairment regulation, firms are likely to exhibit larger goodwill figures. They use consolidated annual reports from 2004 to 2011, an approach that allows to study the transition from goodwill amortisation to impairment, mandatory for all listed firms on European stock markets to prepare consolidated financial statements.

However, more recently, the Spanish case allows for the analysis of the inverse transition. In Spain, the 2008 accounting reform was aligned with IFRS 3, but since 2016 systematic amortisation of goodwill linearly over 10 years (unless a different useful life is justified) is again required, following the EU Directive 2013/34 for non-listed firms. The only exception applies to consolidated financial statements of firms that issued securities in an EU regulated secondary market (debt securities and equity instruments), which maintains the application of the IAS/IFRS, as well as for non-listed companies that voluntarily decide to use the IAS/IFRS in their consolidated annual accounts. The transition from impairment to amortisation regulations included a transitional provision that allows firms, only in 2016, to amortise goodwill against reserves on a straight-line basis over 10 years from the date of the initial recognition of goodwill.

The motivation of this article is to analyse the new "turn-around" requiring again the systematic amortisation of goodwill. In particular, we contribute in three instances. First, we perform a similar descriptive analysis to that of the EFRAG (2016), here using data from Spanish firms, to observe whether the return to goodwill amortisation led to a reduction in its aggregate value across companies, as well as differences across sectors. Second, we test whether higher goodwill balances during the impairment period are in fact due to the higher weight of intangibles not separately recognised on the balance sheet.

Third, we test the impact of the two regulations on market prices: do investors correct for the effects of potentially inflated goodwill balances in prices? The literature on stock market reaction to goodwill analyses whether goodwill recognition and impairment by listed firms provide useful information to investors, and whether this information is fully recognised in stock prices. Most of these studies identify a delayed recognition of goodwill impairment, with investors being unable to fully discount the effect of overstated goodwill figures. Thus, Knauer and Wöhrmann (2016) find negative market reactions to announcements of unexpected goodwill impairment, both in the context of IAS 36 and SFAS 142, the more negative the more managerial discretion is available. Li and Sloan

(2017) examine the impact of inflated goodwill balances after SFAS 142 on market valuation and find that investors did not fully anticipate the impact of the new regulation. Schatt *et al.* (2016) provide a summary of the academic literature in the field. We contribute to this literature with the analysis of the transition from impairment to amortisation regulation, providing unprecedented new results.

The structure of the article is as follows. In Section 2, the recent changes in the accounting for goodwill and prior academic research about it are reviewed, followed by the hypothesis development. Section 3 describes the research design for each hypothesis to be tested. In the fourth Section, data and sample selection are described. The empirical results are then discussed in Section 5, in two parts: the overall impact on goodwill of the alternative accounting methods, and the impact of that change over security mispricing. Finally, Section 6 provides a set of conclusions. Additional robustness test results are provided in the Supplementary Material (Supp. Mat.).

2. Literature review and hypothesis development

2.1 Extant research

The literature on the impact of goodwill recognition or impairment is booming, with over 100 empirical studies that we identified in major accounting journals in the Scopus database in the last 8 years. Four areas account for most of these studies: namely, how impairment recognition is driven by managerial incentives, the challenge it represents for auditors, the impact of goodwill amortisation and impairment on market prices, and the impact of changes in national accounting regulations.

Most studies suggest that goodwill impairment is driven by managerial incentives and traits. Recent examples include Pavlopoulos and Iatridis (2023) and Chung *et al.* (2022) on the effects of goodwill disclosure on earnings management, the relationship between the timeliness of goodwill impairments and the quality of non-financial reports (Iatridis *et al.*, 2022), the constraints on goodwill impairment recognition imposed by labour unions (Kallousa *et al.*, 2023), and the impact of managerial traits on impairment recognition, such as hubris (Runesson and Samani, 2023) and overconfidence (Chung and Hribar, 2021).

The debate leans towards the positive or negative effects of impairment recognition. Thus, Li and Sloan (2017) find that the GAAP standard (SFAS 142) resulted in inflated goodwill balances and untimely impairments, while managerial manipulation to avoid impairment losses seems to be detrimental to firms' future performance (Filip *et al.*, 2015). Cheng *et al.* (2018), instead, suggest that managers will acquire more information to comply with SFAS 142, hence improving firms' internal information and leading to higher efficiency and better performance. Other authors focused on the impact of goodwill impairment over the cost of capital (Mazzi *et al.*, 2017), the assessment of intangible assets derived from innovations (Labunska *et al.*, 2017), and how ethical are managerial decisions on goodwill impairment (Giner and Pardo, 2015). Ferramosca and Allegrini (2021) show that the majority of chief financial officers prefer goodwill impairment testing to the amortisation process. Moreover, Cowan *et al.* (2023) have recently shown that that the size and presence of a goodwill impairment charge are positively associated with forced CEO turnovers – implying that goodwill impairment provides information before CEO changes occur.

The literature on auditing shows how such managerial discretion challenges auditor independence. Thus, the non-audit fees firms pay seem to be inversely related to the likelihood of impairment recognition when goodwill is likely to be impaired (Carcello *et al.*, 2020) and firms recording a goodwill impairment are prone to dismiss auditors who are not favourable to their impairment decisions (Ayers *et al.*, 2018). Moreover, Albersmann and Quick (2020) finds that firms seem to report goodwill impairments in a timelier fashion when they are audited by a Big 4 auditor.

Our research is closely related to the third area of research – the impact of goodwill measures on market prices. This stream of literature analyses whether goodwill recognition and impairment by listed firms provide useful information to investors that is properly recognised into stock prices. Earlier studies (e.g. Chauvin and Hirschey, 1994; Giner and Pardo, 2002; Jennings *et al.*, 2001; McCarthy and Schneider, 1995) analysed the impact of the value of goodwill on market prices in the period in which it was subject to systematic amortisation (before the widespread use of impairment tests). Most studies find that a delayed recognition of goodwill impairment, with investors being unable to fully discount the effect of overstated goodwill figures (Knauer and Wöhrmann, 2016; Li and Sloan, 2017; Schatt *et al.*, 2016). Recent examples include Ayres *et al.* (2019), Park (2019), Han *et al.* (2021), Johnson *et al.* (2021), and Bagna *et al.* (2023). Linsmeier and Wheeler (2021) summarise the current debate and flaws in both the amortisation-and-impairment and impairment-only methods, and empirically examine the decline in goodwill value under both regimes.

Most of these articles often confirm that under the impairment regulation, firms are likely to exhibit larger goodwill figures. However, the debate lingers. For instance, Burger and Wen (2021) find reported goodwill figures more value relevant after SFAS 142, while Bartov *et al.*(2021) show that the 2001 regulatory change from a goodwill amortisation to a non-amortisation regime (SFAS 142) caused a significant increase in overbidding in M&As in the post-2001 period. In any case, all these studies dealt with the introduction of impairment tests – also the existing research for Spain (e.g. Cavero-Rubio *et al.*, 2021). However, the recent change in regulation in Spain allows to analyse the inverse transition – from impairment back to amortisation, which we offer in our study.

Finally, a few articles use country-specific analysis, such as ours, to test the impact of the alternative regulations. These include, amongst others, the cases of China (Huang and Xiong, 2022), Brazil (Cappellesso and Niyama, 2022), and Turkey (Akbaba *et al.*, 2022). André *et al.* (2016) provide a comparative analysis of US and European firms regarding impairment recognition. Alshehabi *et al.* (2021) find that the value relevance of goodwill impairment losses is substantially higher for firms domiciled in countries with high-level institutional quality than for firms in countries with low institutional quality.

2.2 Hypothesis development

In the empirical section, we will start by analysing the impact of the change in regulation in Spain over goodwill and impairment figures. Thus, the evolution over time of the amount of goodwill and goodwill impairment, the relative weight of goodwill compared to total assets and equity, and of impairment to total assets and to goodwill balances, as well as the degree of concentration and a breakdown by industry will be provided.

Since advocates of goodwill amortisation argue that goodwill balances have constantly increased their relative weight on balance sheets (EFRAG, 2016), we will then test whether the aggregate value of goodwill decreased after the introduction of the amortisation method in year 2016, using several descriptive measures to that purpose. Contrariwise, advocates of the impairment method argue that such increase in goodwill balances is related to internally generated intangibles not recognised in the balance sheet of the acquiree. One of the advantages of the impairment method is that it allows intangible assets to remain in the balance sheet over time; for instance, goodwill obtained through an M&A transaction can maintain its value over time because the business continues to generate other intangible assets such as brand name, recognition, etc.

In the first case, if firms use the impairment regulation to artificially inflate goodwill and the change to the amortisation regulation helps to correct the bias, we should observe the market-to-book values (MBV) of firms with positive goodwill balances increasing relative to control firms after the introduction of the amortisation method. Thus, during the impairment

period, treatment firms would exhibit MBV below those of similar peers – after controlling for size, return, productivity, and other variables – and MBV ratios would tend to converge after the implementation of the amortisation method (EFRAG, 2016; Ayres *et al.*, 2019, Linsmeier and Wheeler, 2021).

However, in the second case, if using the impairment method allows firms to exhibit internally generated intangibles and the amortisation method would reduce goodwill below its fair value, we should also observe MBV of firms with positive goodwill increase relative to control firms after the introduction of the amortisation method. The difference lies in the evolution of MBV from values similar to those of the control firms before 2016, to higher values after the implementation of the amortisation method.

Consequently, we formulate the following alternative hypotheses:

H1a. MBV of firms with positive goodwill increased relative to control firms after the introduction of the amortisation method, rising from lower MBV to similar MBV values.

H1b. MBV of firms with positive goodwill increased relative to control firms after the introduction of the amortisation method, rising from similar MBV to higher MBV values.

Second, we aim to study the consequences of financial reporting standards on goodwill and impairment. Recent articles such as Li and Sloan (2017) and Cheng *et al.* (2018) analyse the introduction of impairment tests. We analyse the opposite: how going from impairment regulation (before 2016) to goodwill amortisation (after 2016) in Spain affected business performance and stock prices. Focussing first on listed firms, we examine whether the accounting discretion granted by accounting regulation in Spain before 2016 was costly to financial statement users in terms of security mispricing, and it reversed with the new regulation where goodwill is systematically amortised. We define the hypothesis as follows:

H2. Stock prices did not fully anticipate the untimely nature of goodwill impairments in the pre-2016 period.

Following Li and Sloan (2017), we will use a set of financial statement variables to identify firms with delayed goodwill impairment and test the impact on treatment firms of the change in regulation.

3. Research design

3.1 Goodwill under the different accounting methods

The initial descriptive analysis on the impact of the alternative accounting regulations over goodwill and impairment measures, their relative weight in balance sheets and breakdown by industries will be provided for different panel datasets.

Then, hypotheses H1a and H1b are tested through a combination of an ANOVA analysis and a difference-in-differences (DiD) approach. The DiD helps to identify whether the MBV increased more for firms in the treatment group after 2016. MBV is measured as the market value of equity over the book value of equity, and the empirical specification is:

$$\mathrm{MBV}_{it} = \gamma_0 + \gamma_1 D_i + \gamma_2 T_t + \gamma_3 D_i T_t + \Sigma \beta_x \,\mathrm{Control}_{it} + \omega_{it} \tag{1}$$

where subscript it refers to firm i at time t. The MBV is compared in terms of a dummy variable D_i that takes value equal to 1 for firms with positive goodwill at some point in 2012–2019 and 0 otherwise, and in terms of a dummy variable T_t that takes values 0 before 2016 and 1 after the change in regulation. Finally, ω_{it} is an error term. Since treatment firms have goodwill and control firms do not, they are likely to differ in features such as size, return and

leverage. To control for the effect of these differences, we use a list of control variables: firm size (logassets) is measured as the natural logarithm of total assets at year-end; return on assets (ROA), measured as EBITDA over assets; and leverage (LEVER2), measured as the ratio of the firm's long-term debt and debt in current liabilities over total assets.

According to both hypotheses, MBV ratios are expected to increase relative to the control group after the change in regulation. Hence, the coefficient of interest is $\gamma 3$, with $\gamma 3 > 0$ (with $\gamma 3 > \gamma 2$) required for H1a and H1b to hold. Moreover, a by-industry analysis is performed to observe which sectors exhibit greater variation (presumed to be driven by unrecorded intangibles under the amortisation method). Disentangling whether the evidence favours the amortisation method (hypothesis H1a) or the impairment method (hypothesis H1b) will come from the results of the ANCOVA test [1].

3.2 The impact of changes in regulation on security mispricing

The end of the impairment method in year 2016 also allows us to study whether delayed goodwill impairments are properly recognised into stock prices. The methodology we use basically follows that by Li and Sloan (2017), although with some nuances regarding the dataset that will be described in Section 4 and considering that we are dealing with the inverse transition from impairment to amortisation regulation.

We use two proxies to identify firms with delayed goodwill impairment: a market indicator and a financial indicator. The first one (BTMind) takes value equal to one for firm-years with a book-to-market ratio (BTM) greater than one and positive goodwill. Following Ramanna and Watts (2012), this would indicate that the stock market believes that the firm's goodwill is probably impaired. The second indicator (IMPind) uses accounting data to infer when impairment is likely, by capturing the combination of a low ROA (operating income before depreciation and amortisation divided by total assets) and high GW_A (goodwill scaled by total assets). The threshold values will be provided in the sample selection section.

Then, using IMPind and BTMind in year $t-1$ to predict goodwill impairment in year t, we test whether IMPind predicts the future share price declines associated with unanticipated impairment. To such purpose, we will partition the dataset into three groups based on IMPind in year $t-1$ – IMPind $= 1$ (high likelihood of impairment), IMPind $= 0$ (medium likelihood), and IMPind $= -1$ (low likelihood) – and examine the size and book-to-market adjusted stock returns (ER_t) of each partition. Here we follow Dharan and Ikenberry (1995) methodology in adjusting returns for book-to-market and size, where ER_t for each firm-year is measured as the buy-and-hold return over fiscal year $t-1$ in excess of the buy-and-hold return on its size and BTM matched portfolio over the same period. The mean values of ER_t for the different partitions, before and after the change in regulation, are compared to the mean values of a dummy variable (IMPdum) that takes the value of one if a firm has nonzero impairment in period t and zero otherwise. We will obtain positive evidence for hypothesis H2 if we find that IMPind helps to predict future returns along the impairment period, but not in the amortisation period afterwards.

4. Data and sample selection

This research looks for evidence of whether goodwill balances have increased over time during the impairment period, and whether stock prices anticipated the untimely nature of impairments. To such purpose, a database of listed firms in Spain is used. However, the full list of individual companies declaring goodwill in the past decade includes only a small number of cases. Therefore, we start with a descriptive analysis of the size of goodwill balances and relative weight of impairments for a complete dataset of listed and unlisted firms. Then, a comparison on the degree of concentration of goodwill by industry for both

listed and unlisted firms follows, to determine the plausibility of extrapolating the results for listed firms to the broader set of unlisted firms.

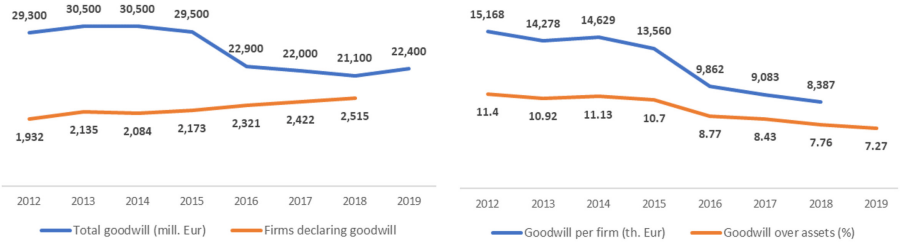
4.1 Goodwill under the different accounting methods

The universe of individual financial statements by all non-financial companies in Spain that had some positive goodwill in their balances at least one year between 2012 and 2019, according to SABI – Bureau van Dijk database (BvD), results in a total of 3,906 firms. Of these, only 40 were listed companies. We start with the complete dataset to observe the impact of the change in regulation in 2016 over goodwill and impairment measures [2]. To such purpose, we follow a similar description to that by EFRAG (2016), including the evolution over time of the amount of goodwill and goodwill impairment, the evolution of the relative weight of goodwill compared to total assets, and of the relative weight of impairment to goodwill balances. Finally, a breakdown of goodwill by industry is provided, both for the complete dataset and for the reduced dataset of listed companies only.

Defenders of systematic amortisation claim that goodwill balances tend to increase over time under impairment regulation. In such case, in Spain we should observe that trend until year 2016, followed by a decreasing trend afterwards. Figure 1a provides the evolution over time of total goodwill and the number of firms with positive goodwill. Figure 1b completes the description with the relative weight of goodwill, both by company and over total assets.

During the impairment regulation, total goodwill declared in Spain was stable at about 30,000 million euros, with a slight decrease in 2015. Then, a clear reduction followed in year 2016 when the new regulation was introduced. Since then, the trend seems to be quite stable again; however, the number of firms with positive goodwill continues to increase steadily, from 1,900 firms in 2012 to 2,500 in 2018 [3]. Consequently, it is not a surprise that goodwill expressed in relative terms clearly shows that the impact of the change in regulation to systematic goodwill amortisation was a reduction of the average goodwill per company, as well as of the share of goodwill over total assets. The trend was quite stable before 2016 (with the nuance of an apparently larger reduction of goodwill per company in 2015), fell sharply in 2016 about 3.7 million euros and 2.0% of total assets, and continued to steadily decrease during the amortisation period.

Figure 2 provides a similar interpretation for the impairment and amortisation measures. First, we clearly observe the effect of the transitional provision in 2016: firms amortised goodwill against reserves about twice as much as they would amortise annually in the subsequent period. Here considered as impairment – as firms voluntarily recognise an impairment loss that they did not record during the impairment years – this represents more than 10 times the annual impairment they recognised in the past. Moreover, and surprisingly, the average impairment recognised during the amortisation period was slightly higher in



(a) **(b)**

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Figure 1. Evolution of goodwill from 2012–2019, in absolute and relative terms

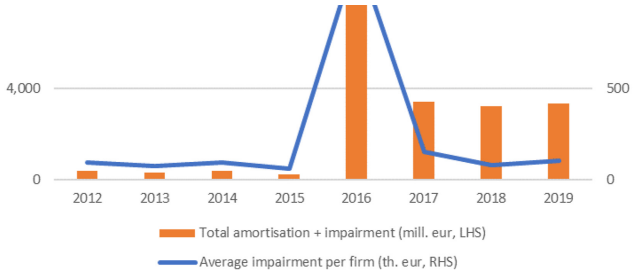

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Figure 2. Average impairment by firm and total impairment plus amortisation, 2012–2019

2017 and 2019 than during the impairment period. All these effects sum up in the evidence that the impairment recognised annually before 2016 was well below the sum of systematic amortisation plus impairment recognised after the change in regulation, resulting in the evolution over time of goodwill balances that we saw in Figure 1.

The above results could be interpreted as favouring a return to systematic amortisation. However, proponents of fair-value impairment would argue that those differences are due to intangibles not recognised on the balance sheet – something we may explore with the performance of market-to-book (MBV) ratios. To this purpose, we will need a database of listed companies only, but the results might not be extrapolated to unlisted firms because of size and industry differences, amongst others. Hence, we start by comparing the breakdown of goodwill by sector for listed and all (listed and unlisted) firms – see Table 1 [4].

The largest sector by number of firms is commerce, with 36% of the observations, followed by professional services (27%) and manufacture (24%). Transport (5%), construction (3.5%), hospitality services (3.5%) and the primary sector (1%) are barely represented. Average goodwill balances per firm are quite similar across sectors, ranging from 4.4 million euros in the primary sector to 22.7 million in professional services. All sectors show a large reduction of goodwill balances from 2016 onwards, and particularly that year. Nonetheless, the largest declines are observed in the construction sector (more than 50% decrease), as well as in manufacturing and hospitality (almost 50% in each case).

The by-industry distribution of listed firms is quite different. Most firms are in professional services (60%, more than double their weight in the full dataset) and manufacturing (25%). Construction has 7.5% of the observations, and commerce (5.0%) is well below its weight in the larger sample. Primary sector, transport and hospitality services have hardly any or no observations. The only sector that can be considered well represented is manufacturing, with similar weight and average goodwill per firm. Otherwise, the differences are not only sectoral, but also in terms of size: listed firms tend to be much larger, and thus, average goodwill on balances is about 8–10 times higher. All this suggests that the results of the analysis that follows for MBV ratios of listed firms cannot be extrapolated to unlisted firms.

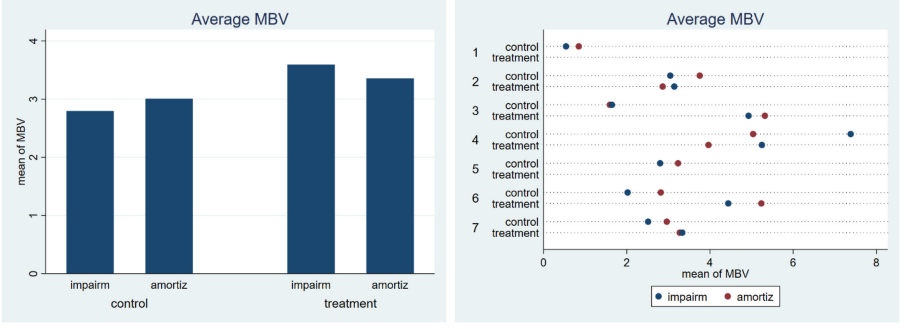
The MBV ratios of listed firms that declared goodwill (treatment group) is compared against those of all the other listed firms in Spain (the sample and data collection for the control group is described in Section 4.2). If the amortisation method helps to correct inflated goodwill balances, we should observe MBV ratios of treatment firms rising from lower to similar values of their counterparts. On the contrary, if the amortisation method only makes

Table 1. Average goodwill figures by industry and year

Industry	Primary sector	Manufact. and energy	Construct	Commerce	Transport	Hospitality	Professional services
All firms							
Year-firms	392	7,472	1,136	11,168	1,528	1,088	8,464
%	*1.3%*	*23.9%*	*3.6%*	*35.7%*	*4.9%*	*3.5%*	*27.1%*
Year							
2012	4,072	14,094	18,743	6,509	9,952	10,826	30,236
2013	3,537	13,436	17,363	5,582	9,555	8,988	29,244
2014	3,978	19,749	20,541	5,237	9,741	9,258	23,689
2015	3,951	19,348	19,284	4,994	10,352	9,691	20,285
2016	3,002	10,521	8,848	4,519	8,795	4,901	17,633
2017	7,766	9,125	6,943	4,325	9,193	3,764	16,451
2018	6,496	8,450	7,195	3,635	7,543	4,684	15,702
2019	2,090	7,453	6,185	2,940	6,536	4,541	28,610
Average	*4,362*	*12,772*	*13,138*	*4,718*	*8,958*	*7,082*	*22,731*
Listed firms							
Year-firms	0	80	24	16	0	8	192
%	*0.0%*	*25.0%*	*7.5%*	*5.0%*	*0.0%*	*2.5%*	*60.0%*
Year							
2012	0	13,613	212,994	35,956	0	0	357,851
2013	0	14,827	212,994	35,930	0	0	349,884
2014	0	13,358	212,994	21,421	0	0	141,252
2015	0	11,479	212,994	28,126	0	0	120,606
2016	0	8,589	22,180	35,567	0	0	146,925
2017	0	4,932	2,850	30,160	0	101	126,523
2018	0	4,557	2,494	20,382	0	0	114,993
2019	0	4,215	2,138	16,108	0	0	106,122
Average	*0*	*9,446*	*110,205*	*27,956*	*0*	*13*	*183,020*

goodwill figures fall below their fair values, we should observe MBV ratios of treatment firms rising from similar to higher values to those of the control firms. Figure 3 provides the average MBV ratios of both groups, before and after 2016, and their breakdown by industry.

None of those scenarios seems to fit with the evolution of average MBV values. Treatment firms had higher MBV ratios during the impairment period, and they tend to decrease, rather



Note(s): 1. Primary sector; 2. Manufacturing; 3. Construction; 4. Commerce; 5. Transport; 6. Hospitality services; 7. Professional services

Source(s): Figure created by author

Figure 3. Average MBV ratios for treatment vs control firms

than increase, relative to control firms during the amortisation period. By sector, professional services (sector 7) – with 60% of the observations – shows the overall tendency, where the average MBV ratio improved for the control group and slightly decreased for the treatment group. On the contrary, commerce (sector 4) shows a relative improvement of the treatment group (actually, MBV ratios also decreased, but to a larger extent for the control group). As we saw, this sector only has 5% of the observations in this sample, but it is the largest sector (35%) in the overall sample. Consequently, any results we obtain with listed firms cannot be easily extrapolated to all firms.

4.2 The impact of changes in regulation on security mispricing

Between 2012 and 2019, only 40 listed companies in Spain exhibited goodwill at least one year in their individual, non-consolidated, balances. Needless to say, we are constrained by this limited data. Accordingly, to increase the power of our tests, we compare the impact of the change in regulation on security mispricing of those firms relative to all listed firms in Spain. To such purpose, we start by identifying in the SABI database the more than 2,700 companies listed in the stock markets in Spain. Most of them are traded funds and SICAVs (open-ended mutual funds), so we identify them as listed under the NACE code 6430 "Trusts, funds and similar financial entities" and exclude them, together with any financial companies. Moreover, we double-check with the list of SICAVs provided by *Bolsas y Mercados Españoles*, to end up with 269 companies – including the 40 firms that declared goodwill during the period of analysis.

The sample is divided in two periods. On the one hand, the pre-2016 period goes from 2012 to 2015 (with accounting information from 2011 used for lagged ratios), when the 2008 accounting reform that applied IFRS 3/IAS 36 which eliminated goodwill amortisation was in force. On the other hand, the post-2016 period, which goes from 2016 to 2019, in which systematic amortisation of goodwill is again required, straight-line over 10 years unless a different useful life is justified. Only for 2016, RD 602/2016 allowed, on a voluntary basis, the amortisation against reserves of the corresponding linearly amortisable amount for the period from the date of the acquisition of the goodwill up to 2015. For the purposes of this analysis, this amount is considered impairment. Robustness analysis is performed for periods 2013–15 and 2017–19, removing the year of adoption of the new regulation.

Annual financial data is retrieved from financial statements, including goodwill impairment amounts (Imp), which are retrieved from the notes to the financial statements of all firms. End-of-year stock prices and number of shares, required to obtain BTM measures and stock returns, are obtained from a series of sources: SABI database, BME and BME growth websites, financial data providers (Yahoo Finance and Morningstar) and – mostly to retrieve information on the number of shares and revise data to avoid the misleading effect of splits – the notes to the financial statements. In order to have sufficient market data, firms with less than two years of market data are filtered out.

Table 2 reports descriptive statistics for goodwill and impairment values. The pre-2016 subsample includes 152 firm-year observations from firms in the *treatment group* – of which 89 correspond to firms with positive initial goodwill balances – plus 896 firm-year observations from listed firms that did not declare any goodwill. The average beginning goodwill to assets (GW_A_{t-1}) is 0.94% (4.69% if only firms in the treatment group are considered). Goodwill impairments were recognised in 12.4% of the cases in the treatment group, with similar ratios in any year, but the impairment amount was larger in 2015. The post-2016 subsample includes a similar amount of data: 152 firm-year observations in the treatment group, of which 91 correspond to positive goodwill balances, plus 896 firm-year observations from other listed firms. Average GW_A_{t-1} is 0.60% (3.56% for firms in the treatment group), clearly lower than in the impairment-only period. Although these lower

balances would be a consequence of the systematic recognition of goodwill amortisation that is now required, the percentage of companies that recognised impairment (9.9%) is still relevant, with evidence of clustering in 2016 led by the voluntary transitional provision.

To test whether impairments were less timely in the pre-2016 period, we compare whether they lag the two indicators of impairment defined in Section 3. A BTMind equal to one (firm-years with BTM greater than one and positive goodwill) means the stock market believes that the firm's goodwill is likely impaired. IMPind requires to define two thresholds for ROA and GW_A to be indicative of a likely impairment. Considering that the average ROA of the whole sample is 3.6% and the average GW_A is equal to 4.0% (for treatment firms only), we define the following levels: IMPind takes value equal to 1 if GW_A > 4% and ROA < 3.5%, value equal to −1 if GW_A < 4% and ROA > 3.5%, and value equal to 0 otherwise (including all firms with no goodwill).

Table 3 reports descriptive statistics for BTMind and IMPind in period $t-1$ for firm-years with and without goodwill impairment in period t. Less timely impairments in year t should be associated to relatively lager impairment indicators in period $t-1$. In the pre-2016 period, during impairment regulation, only 11 firms declared impairment – what limits the power of the tests. The average IMPind of the treatment firms is higher for the impairment sample than for the non-impairment sample (0.545 vs −0.244) with high statistical significance ($p < 0.01$). Hence, according to our financial indicator, goodwill impairments are untimely in the pre-2016 period. For non-impairment firms in the full sample, the mean indicator is again much lower than for impairment firms (0.545 vs −0.576), with statistical significance. The impairment sample also has a higher market indicator (BTMind equal to 0.273) than non-impairment firms of both the treatment and full sample (0.143 and 0.032, respectively) – though the difference is only significant for the full sample ($p < 0.01$). Consequently, both indicators suggest that goodwill impairments are untimely in the pre-2016 period, although IMPind works better.

In the post-2016 period, during amortisation regulation, only 9 firms declared impairment – limiting even more the power of the tests. The differences in IMPind between impairment and non-impairment samples are now lower than in the pre-2016 period (0.222 vs −0.239 for treatment firms and −0.61 for the full sample), with the difference being only significant at $p \approx 0.05$. This indicates that the association between IMPind and future impairment is weaker in the post-2016 period, probably because systematic amortisation prevents large goodwill balances and reduces potential delays in impairment. Turning to the market indicator, the evidence we obtain is quite similar: the differences in BTMind are again lower than in the pre-2016 period (0.111 vs 0.038 and 0.007), and only statistically significant for the full sample. Like

Year	Listed firms	Treatment firms	Positive goodwill (N)	GW_A_{t-1}	GW_A_{t-1} overall	Firms with goodwill impairment		
						n	n/N	Imp_t/GW_{t-1}
2012	224	38	21	4.19%	0.87%	2	9.5%	2.46%
2013	224	38	21	4.65%	0.94%	3	14.3%	4.17%
2014	224	38	23	4.88%	0.97%	2	8.7%	1.29%
2015	224	38	24	5.00%	0.96%	4	16.7%	4.66%
Subtotal	*896*	*152*	*89*	*4.69%*	*0.94%*	*11*	*12.4%*	*3.19%*
2016	224	38	26	4.12%	0.73%	5	19.2%	10.43%
2017	224	38	24	3.37%	0.58%	2	8.3%	3.27%
2018	224	38	21	3.30%	0.54%	1	4.8%	0.74%
2019	224	38	20	3.42%	0.57%	1	5.0%	0.31%
Subtotal	*896*	*152*	*91*	*3.56%*	*0.60%*	*9*	*9.9%*	*3.71%*

Table 2.
Time series averages of goodwill balances and goodwill impairments in the pre-2016 and post-2016 regimes. Sample: listed firms, 2012–2019

Table 3.
Descriptive statistics for market and financial indicators of goodwill impairment in the pre-2016 and post-2016 regimes. Sample: listed firms, 2012–2019

	Pre-2016 period							Post-2016 period							
	Treatment			Full sample				Treatment			Full sample				
Variable	IMP (1)	No-IMP (2)	(1)–(2)	No-IMP (2b)	(1) - (2b)			IMP (3)	No-IMP (4)	(3)–(4)	No-IMP (4b)	(3) - (4b)		(1)–(3)	
IMPind $_{t-1}$	0.545	−0.244	0.790	***	−0.576	1.122	***	0.222	−0.239	0.461	**	−0.610	0.832	***	0.323
	$N = 11$	$N = 135$	(15.85)		$N = 701$	(47.46)		$N = 9$	$N = 138$	(5.36)		$N = 828$	(23.34)		(1.48)
BTMind $_{t-1}$	0.273	0.143	0.130		0.032	0.241	***	0.111	0.038	0.073		0.007	0.104	***	0.162
	$N = 11$	$N = 98$	(1.26)		$N = 402$	(17.87)		$N = 9$	$N = 131$	(1.09)			(11.55)		(0.76)

Note(s): *significant at 10%; ** significant at 5%; *** significant at 1%

Li and Sloan (2017), the results for the change in regulation in Spain after 2016 suggest that investors anticipate some untimely impairment. However, the significance of these results for both the financial and market indicators is limited by the reduced number of impairment cases by listed firms in Spain. This is reinforced by the evidence provided in the (1)–(3) column: the differences in the values of the indicators for firms with impairment across the pre- and post-2016 periods are clearly higher before 2016 – suggesting that the goodwill impairments are less timely during the impairment period – but without statistical significance for only 11 and 9 cases to analyse, respectively.

5. Empirical results

5.1 Goodwill under the different accounting methods

Hypotheses H1a and H1b are now tested using the DiD described in section 3.1. The results are provided in Table 4. The coefficient of interest is γ_3 (the coefficient of DT, for firms with some positive goodwill after 2016): for both hypotheses to hold it is required that $\gamma_3 > 0$ (with $\gamma_3 > \gamma_2$). On the contrary, $\gamma_3 = -0.06$ with no statistical significance. This implies that, considering only the 40 listed companies that disclosed some goodwill in their balances, we lack statistical significance to confirm that goodwill figures were inflated during the impairment period – as the analysis for the complete set of private and public firms in Section 4.1 suggested. Regressions by sector show similar lack of statistical significance.

ANOVA analysis in Table 5 shows treatment firms had higher MBV on average than control firms during the impairment period, and the difference reduced to a half after 2016. However, none of these differences are statistically significant after controlling for size, ROA and leverage. Therefore, despite the reduction of the average goodwill per company and over total assets observed in Section 4.1 for all firms in Spain with positive goodwill, when only listed firms are considered, we do not obtain any statistical evidence in favour of either the impairment regulation or the amortisation regulation.

5.2 The impact of changes in regulation over security mispricing

We test hypothesis H2, whether stock prices did not fully anticipate the untimely nature of goodwill impairment in the pre-2016 period, by testing whether IMPind – which showed to predict future impairment in Section 4. – also predicts the future stock price declines associated with unanticipated impairment. To such purpose, we compare the average values in year t of IMPdum and ER – defined in Section 3 – for the portfolios formed on IMPind = 1 (high likelihood of impairment), IMPind = 0 (medium likelihood), and IMPind = −1 (low likelihood) in t−1 – see Table 6.

	Coef	Robust Std.Err	t	Sign
MBV				
D	0.254	0.505	0.50	
T	0.037	0.219	0.17	
DT	−0.060	0.642	−0.09	
Logassets	−0.199	0.044	−0.45	
ROA	0.139	0.020	7.07	***
LEVER2	0.013	0.006	2.10	**
Constant	1.703	0.555	3.07	***

Note(s): * significant al 10%; ** significant at 5%; *** significant at 1%
D = dummy for firms with some positive goodwill. T = dummy equal to 1 after 2016

Table 4.
DiD regression results for MBV values of listed firms, before and after 2016

Table 5.

Summary of

tests ANOVA

Pre-2016						Post-2016					
MBV	Mean	Std. dev	Freq			MBV	Mean	std. dev	freq		
Control	2.79	4.092	385			Control	3.01	4.166	639		
Treatment	3.59	5.852	115			Treatment	3.35	4.360	137		
	Mean diff						Mean diff				
T minus C	0.7968					T minus C	0.3483				
		ANCOVA						*ANCOVA*			
Source	Partial SS	df	F	Prob > F		Source	Partial SS	df	F	Prob > F	
Model	1009.89	15	5.17	0.0000	***	Model	2088.66	15	15.41	0.0000	***
FC	24.82	1	1.91	0.1682		FC	0.22	1	0.02	0.8761	
Logassets	39.04	1	3.00	0.0842	*	Logassets	19.22	1	2.13	0.1452	
ROA	12.56	1	0.96	0.3268		ROA	52.08	1	5.76	0.0166	**
LEVER2	9.93	1	0.76	0.3831		LEVER2	0.22	1	0.02	0.8753	
And 11 cross-factors						And 11 cross-factors					
Residual	5575.7852	428				Residual	6254.8414	692			
TOTAL	6585.6729	443				TOTAL	8343.5021	707			

Note(s): *significant at 10%; **significant at 5%; ***significant at 1%

	Pre-2016 period								Post-2016 period							
	Treatment				Full sample				Treatment				Full sample			
Portfolio formed on $IMPind_{t-1}$	N	$IMPdum_t$		ER_t (%)		N	$IMPdum_t$		ER_t (%)		N	$IMPdum_t$		ER_t (%)		N	$IMPdum_t$		ER_t (%)	
$IMPind_{t-1} = -1$	48	0.000		−6.39%		419	0.000		−4.29%	***	44	0.023		1.08%		516	0.002		−3.02%	***
				(−1.26)					(−2.44)			(1.00)		(0.24)			(1.00)		(−2.41)	
$IMPind_{t-1} = 0$	77	0.065	**	−2.73%		272	0.018	**	−4.46%	**	90	0.056	**	−3.52%		308	0.016	**	−7.48%	***
		(2.30)		(−0.77)			(2.25)		(−2.18)			(2.29)		(−1.24)			(2.25)		(−4.19)	
$IMPind_{t-1} = 1$	21	0.286	***	−11.8%	*	21	0.286	***	−11.8%	*	13	0.231	**	−19.1%	**	13	0.231	**	−19.1%	**
		(2.83)		(−1.31)			(2.83)		(−1.31)			(1.90)		(−2.09)			(1.90)		(−2.09)	
$IMPind_{t-1}$ (−1) - $IMPind_{t-1}$ (1)		*−0.286*	***	*5.36%*			*−0.286*	***	*7.46%*			*−0.208*	**	*20.2%*	*		*−0.229*	***	*16.1%*	
		(−4.36)		*(0.58)*			*(−11.22)*		*(1.00)*			*(−2.79)*		*(2.19)*			*(−8.21)*		*(1.93)*	

Note(s): *significant al 10%; **significant at 5%; ***significant at 1%

Table 6.
Annual excess returns (ER_t) for portfolios formed on the financial indicator of goodwill impairment ($IMPind_{t-1}$) in the pre-2016 and post-2016 regimes. Sample: listed firms, 2012–2019

The results provide further evidence that IMPind is properly devised: no firms with value equal to −1 (low goodwill and high ROA) declared impairment the following year during the pre-2016 period (and almost none after 2016), suggesting goodwill balances were indeed not inflated. The difference in means of IMPdum between firms with IMPind = −1 and firms with IMPind = 1 is significant at the 1% level in most cases. That said, lack of data for listed companies makes it very difficult to obtain statistically sound evidence. It can be said, though, that differences in mean values suggest not only that investors overvalued firms with inflated goodwill balances in the impairment period (according to hypothesis H2) – but that they continued to overvalue those stocks with the amortisation method.

In detail, in the pre-2016 period, IMPind predicts both future impairments and future stock returns. The average ER is −4.3% (t = −2.44) for firms with IMPind = −1 and −11.8% (t = −1.3) for firms with IMPind = 1. However, despite the difference in ER between the two groups is quite large (+7.5% annual return favourable to firms with timely impairments), it lacks statistical significance due to the high variability of returns of the only 15 cases available to study untimely impaired firms. Results in the post-2016 period are quite similar: mean ER is −3.0% for firms with IMPind = −1 and −19.1% for firms with IMPind = 1. The difference between both groups is even larger than in the impairment period (+16.1% favourable to firms with timely impairments), but again it lacks statistical significance for the only 10 cases available [5]. The results are qualitatively identical for periods 2013–15 vs 2017–19, at the expense of losing statistical significance due to the reduced number of observations (see Table S1 in the Supp. Mat.).

Taking for granted the apparent result that investors keep overvaluing firms with inflated goodwill balances also after 2016 with the amortisation method, we suggest a possible interpretation: previous studies tested the impact of the change from amortisation to impairment regulation, while we study the opposite case. In the former case, the amortisation period precedes the impairment period, so it does not inherit inflated goodwill balances from the past. In contrast, in Spain from 2016 onwards, it is possible that the effects of the impairment method linger, and investors do not see through these inflated balance sheets.

5.3 Discussion of results

The first result we obtained aligns with extant research, confirming that firms tend to report larger goodwill figures under the impairment regulation. In Spain, the reintroduction of the amortisation method in 2016 led to a clear reduction in total goodwill and, particularly, average goodwill per company and the share of goodwill over total assets. Moreover, the annual impairment recognised prior to 2016 was well below the sum of systematic amortisation and impairment recognised after the regulatory change. These results are consistent with most empirical evidence, such as EFRAG (2016), André *et al.* (2015), Cheng *et al.* (2018), Linsmeier and Wheeler (2021), Cavero-Rubio *et al.* (2021) for Spain, amongst others.

However, this finding does not necessarily indicate that the systematic amortisation method is superior: the higher goodwill values under the impairment method may be attributed to intangible assets not recognised on the balance sheet. To further investigate, we examined the performance of market-to-book ratios under two alternative hypotheses. First, if MBV ratios of treatment firms (listed firms that reported goodwill) increased from lower levels (before 2016) to similar levels (after 2016) compared to control firms, it would suggest that the amortisation method helped correct inflated goodwill balances. Second, if the MBV ratios rose from similar to higher levels, it would indicate that the amortisation method only made goodwill figures fall below their fair values. However, our findings do not provide positive evidence supporting either scenario (MBV ratios of treatment firms tended to decrease relative to control firms with the amortisation method). Still, these results fail to

provide significant evidence that the goodwill figures of the sector overall were inflated during the impairment period – a result that would favour recent evidence by Bagna *et al.* (2023) in favour of the value relevance of impairment tests.

When examining the impact of both accounting methods on market prices, we were limited by the scarcity of available data. Despise this constraint, the combination of financial and market indicators we employed yielded some evidence of untimely impairments in the pre-2016 period – an impact mitigated with the amortisation method after 2016. We formed portfolios formed based on the likelihood of impairment according to the financial indicator. The results indicate that investors not only overvalued firms with inflated goodwill balances during the impairment period (+7.5% annual return favourable to firms with timely impairments), but they continued to overvalue those stocks with the amortisation method (+16.1% favourable to firms with timely impairments).

The evidence regarding the impairment period aligns with previous studies suggesting that investors struggle to fully account for the impact of inflated goodwill figures (eg. Knauer and Wöhrmann, 2016; Li and Sloan, 2017), and that managerial manipulation to avoid impairment losses seems to be detrimental to firms' future performance (Filip *et al.*, 2015). Moreover, Park (2019) finds a weakened book-to-market effect (higher BTM predicting higher returns) in the post-SFAS 142 period for firms with goodwill or impairment loss (suggesting that balances are inflated during impairment period due to unrecognised losses). We may also link our results to those by Han *et al.* (2021) regarding the transition from amortisation to the impairment-only approach in CAS 8 (China's standards), according to which analyst coverage associates negatively with goodwill impairment.

However, what sets our findings apart from previous literature is that the return predictability persists after the reintroduction of the amortisation method. It is true that some recent studies have emerged in support of impairment tests, such as Ayres *et al.* (2019) finding that financial analysts' presence compels recognition of goodwill impairments, Johnson *et al.* (2021) validating the FASB vision that financial statement users will be better able to assess the future economic benefits associated with goodwill, and Bagna *et al.* (2023) finding that the information provided by listed companies to market investors under the impairment tests regulation is value relevant, supporting to enforce the current rules at the international level. But the Spanish experience provides evidence for which we found no precedent in the literature: investors were unable to fully discount the effect of overstated goodwill figures by some opportunistic firms during the impairment regulation, but investors did not "see through" the inflated goodwill balances and overvalued some firms as well with the reintroduction of the amortisation method. Our interpretation is that the inverse transition from impairment back to amortisation has barely been studied: in previous studies the amortisation period preceded the impairment period, while in Spain from 2016 onwards, it is possible that the effects of the impairment method linger during the amortisation period.

We interpret all this mixed evidence as favourable to recent studies suggesting that the systematic amortisation of goodwill paired with a periodic impairment test may lead to accounting that better reflects the underlying economics of goodwill (Li and Sloan, 2017). Or, perhaps, the opportunity to consider alternative methods, such as those discussed by Linsmeier and Wheeler (2021) (e.g. the amortisation over economically meaningful periods, and a Pre-Acquisition Headroom impairment approach).

6. Conclusions

This article delved into the debate on goodwill amortisation vs impairment. Taking advantage from the recent change in regulation in Spain from impairment to amortisation, we contributed with some analyses, first, testing the impact of this new "turn-around" in regulation on goodwill measures, second, comparing whether the goodwill balances are

related to the weight of intangibles not recognised in the balance sheet, and third, testing whether investors corrected for the effects of potentially inflated goodwill balances in prices during both accounting regimes.

Thus, considering the almost 4,000 non-financial companies in Spain that had some positive goodwill in their balances at least one year between 2012 and 2019, we observe that the impact of the change in regulation to systematic goodwill amortisation was a reduction of the average goodwill per company and of the share of goodwill over total assets. The effect was largely due to the transitional provision in 2016, but also because the impairment recognised annually before 2016 was well below the sum of systematic amortisation plus impairment recognised after the change in regulation. However, when we consider the subset of listed firms to test the relative performance after 2016 of their MBV ratios against a control group of all the listed firms in Spain, we do not obtain any statistical evidence in favour of either the impairment regulation or the amortisation regulation.

Finally, regarding the impact of untimely impairment recognition in terms of security mispricing, our results are again restricted by the reduced number of listed firms that declared goodwill in the past decade. That said, we do obtain evidence that impairments were indeed untimely before 2016. However, although we find that untimely impairment in the pre-2016 predict future stock returns – suggesting that market investors do not "see through" inflated goodwill balances – our results lack of statistical significance. Moreover, there is evidence that investors kept overvaluing these firms with inflated goodwill balances also after 2016 with the amortisation method, suggesting that the effects of the impairment method linger.

These all are relevant lessons to be learnt by accounting regulators and firm managers. The main limitation comes from using data from a single country as a case of study: the lack of data for listed firms with goodwill in Spain makes it very difficult to obtain statistically sound evidence, and the results could be biased by the cultural traits of the country (Statman and Weng, 2010) and social contagion (Manski, 2000), while also being related to the intensity of enforcement and monitoring in the country (Glaum *et al.*, 2018). Other limitations of this study include some assumptions made to obtain in some cases indirect measures of impairment data, as well as the potential impact that the asymmetric economic situation in Spain during the sample period – crisis before 2015; economic growth when amortisation was adopted – may have had on investors' overvaluation in the latter period. Future research might contribute by providing similar tests in other cases of study. Examples may include comparative cases across different countries, using direct data from surveys to company managers to gain deeper understanding of the basis for the impairment estimates made, or the analysis of firms that have voluntarily changed to IFRS right after local regulations imposed the systematic amortisation of goodwill. Furthermore, authors may search for ways to identify company profiles that allow to observe the shielding effect of the impairment test only model: the acquired goodwill impairment can be offset by new internally generated intangibles (goodwill and other) within the same cash-generating unit, not recognised as separate assets – see the Pre-Acquisition Headroom (PAH) impairment approach (Linsmeier and Wheeler, 2021), considered by the IASB to deal with the cushion provided by internally generated acquired goodwill at the time of the acquisition.

Notes

1. Analysis of covariance (ANCOVA) may be used as an extension of analysis of variance (ANOVA) to control for covariates that are not the focus of the study (Leech *et al.*, 2005).
2. Impairment measures are not directly observable, and thus, data were estimated as follows. In period 2012 to 2015, no amortisation of goodwill was allowed, so the estimation was easy to perform. Impairment data were directly estimated from balance sheet information in the following cases. First,

since impairments are estimated relative to goodwill balance in year t−1, when it was zero the impairment is assumed to be zero. Second, when goodwill balance did not change in two consecutive years, the impairment is assumed to be zero. Third, impairment should be reported in the "impairment and losses" account in the income statement, together with any impairment and losses of any intangible assets, PP&E and investment property. Hence, whenever that account was equal to zero, the authors assume goodwill impairment to be zero as well. Fourth, whenever the change in goodwill balance over two consecutive years was identical to the "impairment and losses" reported in the final year, goodwill impairment was assumed to be that amount. In any other case, impairment figures need to be obtained from the notes to the financial statements, where they are reported separately from other assets. With information retrieved online or directly received from companies – the authors wish to thank the collaboration of a few companies here –, the authors managed to complete 98% of the population.

For years 2016–2019, estimating impairment data are less obvious because both systematic amortisation and impairment – as well as the potentially confounding effects of corporate acquisitions and divestitures – may occur at the same time. Hence, the authors proceed as follows. First, the authors identify goodwill reductions caused by divestitures by checking whether the firm reports a non-zero result on discontinued operations. Second, the authors follow Li and Sloan (2017) to estimate goodwill amortisation as any reduction below a 15% threshold relative to the beginning goodwill balance – since a linear amortisation of goodwill over 10 years implies 10% amortisation rate over the first year, but increasing over time. Any goodwill reduction that exceeds that threshold is assumed to be impairment.

3. There is a sharp reduction in the number of firms with financial data available up-to-date in the SABI database in year 2019 (this may be due to some companies not having filed yet their annual reports in the Spanish Mercantile Registry, or because BvD has not yet completed the upload). Hence, the authors consider the figure of firms declaring goodwill in 2019, well below 2,000 firms, is biased, and do not include it in the Figure.
4. Sectors were grouped according to the following NACE codes: (1) Primary sector, (NACEs below 10); (2) Manufacturing (NACEs 10 to 39); (3) Construction (NACEs 41 to 43); (4) Commerce (NACEs 45 to 47); [5]. Transport (NACEs 49 to 53); (6) Hospitality services (NACEs 55 and 56); and (7) Professional services (NACEs above 56).
5. In most groups, negative average ER are obtained. The difference lies in a group of year-firm observations for which there is no value of IMPind in year *t*: those with missing data to construct the indicator. For this group of firms, the average excess return was positive.

References

Akbaba, C., Ibis, C., Yanik, S. and Aytürk, Y. (2022), "Disclosure quality of goodwill impairment testing: evidence from Turkey", *International Journal of Managerial and Financial Accounting*, Vol. 15 No. 1, pp. 88-111.

Albersmann, B.T. and Quick, R. (2020), "The impact of audit quality indicators on the timeliness of goodwill impairments: evidence from the German setting", *ABACUS*, Vol. 56 No. 1, pp. 66-103.

Alshehabi, A., Georgiou, G. and Ala, A.S. (2021), "Country-specific drivers of the value relevance of goodwill impairment losses", *Journal of International Accounting, Auditing and Taxation*, Vol. 43, 100384.

Amel-Zadeh, A., Glaum, M. and Sellhorn, T. (2021), "Empirical goodwill research: insights, issues, and implications for standard setting and future research", *European Accounting Review*, Vol. 32 No. 2, pp. 415-446, doi: 10.1080/09638180.2021.1983854.

André, P., Filip, A. and Paugam, L. (2015), "The effect of mandatory IFRS adoption on conditional conservatism in Europe", *Journal of Business Finance and Accounting*, Vol. 42, pp. 482-514.

André, P., Filip, A. and Paugam, L. (2016), "Examining the patterns of goodwill impairments in Europe and the US", *Accounting in Europe*, Vol. 13 No. 3, pp. 329-352.

Ayers, D.R., Neal, T.L., Reid, L.C. and Shipman, J.E. (2018), "Auditing goodwill in the post-amortization era: challenges for auditors", *Contemporary Accounting Research*, Vol. 36 No. 1, pp. 82-107.

Ayres, D.R., Campbell, J.L., Chyz, J.A. and Shipman, J.E. (2019), "Do financial analysts compel firms to make accounting decisions? Evidence from goodwill impairments", *Review of Accounting Studies*, Vol. 24, pp. 1214-1251.

Bagna, E., Ramusino, E.C. and Ogliari, M. (2023), "The impact of different goodwill accounting methods on stock prices: a comparison of amortization and impairment-only methodologies", *International Review of Financial Analysis*, Vol. 85, 102432.

Bartov, E., Cheng, C.S.A. and Wu, H. (2021), "Overbidding in mergers and acquisitions: an accounting perspective", *The Accounting Review*, Vol. 96 No. 2, pp. 55-79.

Burger, M. and Wen, H. (2021), "The relative and incremental value relevance of goodwill before and after SFAS No. 142", *Journal of Accounting and Public Policy*, Vol. 40 No. 6, 106906.

Cappellesso, G. and Niyama, J.K. (2022), "Timeliness of goodwill impairment in Brazilian companies", *Revista Contabilidade e Finanças*, Vol. 33 No. 90, E1579.

Carcello, J.V., Neal, T.L., Reid, L.C. and Shipman, J.E. (2020), "Auditor independence and fair value accounting: an examination of non-audit fees and goodwill impairments", *Contemporary Accounting Research*, Vol. 37 No. 1, pp. 189-217.

Carvalho, C., Rodrigues, A.M. and Ferreira, C. (2016), "Goodwill and mandatory disclosure compliance: a critical review of the literature", *Australian Accounting Review*, Vol. 26 No. 4, pp. 376-389.

Cavero-Rubio, J.A., Amorós-Martínez, A. and Collazo-Mazón, A. (2021), "Economic effects of goodwill accounting practices: systematic amortisation versus impairment test", *Spanish Journal of Finance and Accounting*, Vol. 50 No. 2, pp. 224-245.

Chauvin, K. and Hirschey, M. (1994), "Goodwill, profitability, and market value of the firm", *Journal of Accounting and Public Policy*, Vol. 13 No. 2, pp. 159-180.

Cheng, Q., Cho, Y.J. and Yang, H. (2018), "Financial reporting changes and the internal information environment: evidence from SFAS 142", *Review of Accounting Studies*, Vol. 23, pp. 347-383.

Chung, B.H. and Hribar, P. (2021), "CEO overconfidence and the timeliness of goodwill impairments", *The Accounting Review*, Vol. 96 No. 3, pp. 221-259.

Chung, P.K., Geiger, M.A., Paik, D.G. and Rabe, C. (2022), "Do firms time changes in accounting estimates to manage earnings?", *Contemporary Accounting Research*, Vol. 39 No. 2, pp. 917-946.

Cowan, A.R., Jeffrey, C. and Wang, Q. (2023), "Does writing down goodwill imperil a CEO's job?", *Journal of Accounting and Public Policy*, Vol. 42 No. 1, 107015.

Dharan, B. and Ikenberry, D. (1995), "The long-run negative drift of post-listing stock returns", *Journal of Finance*, Vol. 50, pp. 1547-1574.

European Financial Reporting Advisory Group (EFRAG) (2016), "What do we really know about goodwill impairment? A quantitative study", available at: www.efrag.org/News/Project-251/What-do-we-really-know-aboutgoodwill-and-impairment-A-quantitative-study

Ferramosca, S. and Allegrini, M. (2021), "Impairment or amortization of goodwill? An analysis of CFO perceptions of goodwill accounting", *European Management Journal*, Vol. 39 No. 6, pp. 816-828.

Filip, A., Jeanjean, T. and Paugam, L. (2015), "Using real activities to avoid goodwill impairment losses: evidence and effect on future performance", *Journal of Business Finance and Accounting*, Vol. 42, pp. 515-554.

Giner, B. and Pardo, F. (2002), "Is goodwill amortization value relevant for share prices? A European Perspective", *25th Annual Congress of the European Accounting Association*, April, Copenhagen.

Giner, B. and Pardo, F. (2015), "How ethical are managers' goodwill impairment decisions in Spanish-listed firms?", *Journal of Business Ethics*, Vol. 132, pp. 21-405, doi: 10.1007/s10551-014-2303-8.

Glaum, M., Landsman, W.R. and Wyrwa, S. (2018), "Goodwill impairment: the effects of public enforcement and monitoring by institutional investors", *The Accounting Review*, Vol. 93 No. 6, pp. 149-180.

Han, H., Tang, J.J. and Tang, Q. (2021), "Goodwill impairment, securities analysts, and information transparency", *European Accounting Review*, Vol. 30 No. 4, pp. 767-799.

Huang, Q. and Xiong, M. (2022), "Managerial ability and goodwill impairment: evidence from China", *International Journal of Emerging Markets*, Vol. ahead-of-print No. ahead-of-print, doi: 10.1108/IJOEM-08-2021-1265.

Iatridis, G.E., Pappas, K. and Walker, M. (2022), "Narrative disclosure quality and the timeliness of goodwill impairments", *The British Accounting Review*, Vol. 54, 100978.

International Accounting Standards Board (2020), "Discussion paper and comment letters: business combinations – disclosures, goodwill and impairment", available at: https://www.ifrs.org/projects/work-plan/goodwill-and-impairment/dp-goodwill-and-impairment/

Jennings, R., LeClere, M. and Thompson, R. (2001), "Goodwill amortization and the usefulness of earnings", *Financial Analysts Journal*, Vol. 57 No. 5, pp. 20-28.

Johnson, P.M., Lopez, T.J. and Sorensen, T.L. (2021), "Did SFAS 141/142 improve the market's understanding of net assets, goodwill, or other intangible assets?", *Review of Quantitative Finance and Accounting*, Vol. 56 No. 3, pp. 891-915.

Kallousa, N., Jang, Y., Jung, B. and Warsame, H. (2023), "Labor unions and post-acquisition integration capability: evidence from goodwill impairment", *Journal of Business Finance and Accounting*, Vol. 50, pp. 764-794.

Knauer, T. and Wöhrmann, A. (2016), "Market reaction to goodwill impairments", *European Accounting Review*, Vol. 25 No. 3, pp. 421-449.

Labunska, S., Petrova, M. and Prokopishyna, O. (2017), "Asset and cost management for innovation activity", *Economic Annals XXI*, Vol. 165 Nos 5-6, pp. 13-18.

Leech, N., Barret, K. and Morgan, G.A. (2005), *SPSS for Intermediate Statistics: Use and Interpretation*, Lawrence Erlbaum, Mahwah, NJ.

Li, K.K. and Sloan, R.G. (2017), "Has goodwill accounting gone bad?", *Review of Accounting Studies*, Vol. 22, pp. 964-1003.

Linsmeier, T.J. and Wheeler, E. (2021), "The debate over subsequent accounting for goodwill", *Accounting Horizons*, Vol. 35 No. 2, pp. 107-128.

Manski, C. (2000), "Economic analysis of social interactions", *Journal of Economic Perspectives*, Vol. 14 No. 3, pp. 115-136.

Mazzi, F., André, P., Dionysiou, D. and Tsalavoutas, I. (2017), "Compliance with goodwill-related mandatory disclosure requirements and the cost of equity capital", *Accounting and Business Research*, Vol. 47 No. 3, pp. 268-312, doi: 10.1080/00014788.2016.1254593.

McCarthy, M. and Schneider, D. (1995), "Market perception of goodwill: some empirical evidence", *Accounting and Business Research*, Vol. 26 No. 1, pp. 69-81.

Park, H. (2019), "Intangible assets and the book-to-market effect", *European Financial Management*, Vol. 25 No. 1, pp. 207-236.

Pavlopoulos, A. and Iatridis, G.E. (2023), "Goodwill impairment disclosure and integrated reporting: evidence on credit ratings and earnings manipulation", *International Journal of Banking, Accounting and Finance*, Vol. 13 No. 3, pp. 341-387.

Ramanna, K. and Watts, R. (2012), "Evidence on the use of unverifiable estimates in required goodwill impairment", *Review of Accounting Studies*, Vol. 17, pp. 749-780.

Runesson, E. and Samani, N. (2023), "Goodwill or "No-will": hubris in the tone at the top", *Journal of Contemporary Accounting and Economics*, Vol. 19, 100331.

Schatt, A., Doukakis, L., Bessieux-Ollier, C. and Walliser, E. (2016), "Do goodwill impairments by European firms provide useful information to investors?", *Accounting in Europe*, Vol. 13 No. 3, pp. 307-327.

Statman, M. and Weng, J.A. (2010), "Investment across cultures: financial attitudes of Chinese-Americans", *Journal of Investment Consulting*, Vol. 11 No. 1, pp. 37-44.

Supplementary material

	pre-2016 period											
	Treatment						Full sample					
Portfolio formed on IMPind $_{t-1}$	N	IMPdum $_t$		N	ER $_t$ (%)		N	IMPdum $_t$		N	ER $_t$ (%)	
IMPind $_{t-1} = -1$	35	0.000		23	−3.20%		312	0.000		197	−2.92%	*
IMPind $_{t-1} = 0$	61	0.082	**	54	−2.91%		217	0.023	**	157	−4.20%	**
		(2.31)			(−0.75)			(2.25)			(−1.93)	
IMPind $_{t-1} = 1$	14	0.286	**	11	−16.3%	*	14	0.286	**	11	−16.3%	*
		(2.28)			(−1.76)			(2.28)			(−1.76)	
IMPind $_{t-1}$ (−1) - IMPind $_{t-1}$ (1)		*−0.286*	***		*13.1%*			*−0.286*	***		*13.3%*	
		(−3.42)			*(1.27)*			*(−8.73)*			*(1.59)*	

	Post-2016 period											
	Treatment						Full sample					
Portfolio formed on IMPind t−1	N	IMPdum t		N	ER *t* (%)		N	IMPdum t		N	ER *t* (%)	
IMPind $_{t-1} = -1$	34	0.000		28	−0.37%		409	0.000		344	−4.43%	***
					(−0.07)						(−3.26)	
IMPind $_{t-1} = 0$	66	0.045	**	54	−2.36%		221	0.014	**	155	−7.78%	***
		(1.76)			(−0.65)			(1.74)			(−3.44)	
IMPind $_{t-1} = 1$	9	0.111		6	−19.7%		9	0.111		6	−19.7%	
		(1.00)			(−1.27)			(1.00)			(−1.27)	
IMPind $_{t-1}$ (−1) - IMPind $_{t-1}$ (1)		*−0.111*			*19.4%*			*−0.111*	***		*15.3%*	
		(−1.58)			*(1.55)*			*(−4.24)*			*(1.41)*	

Table S1. Robustness analysis for annual excess returns for portfolios formed on IMPind$_{t-1}$

Note(s): *significant al 10%; **significant at 5%; ***significant at 1%