35a

CHANGE IN GOODWILL REGULATION: IMPACT ON SECURITY MISPRICING OF LISTED FIRMS *

Fernando Ruíz[a] **, David Peón**[ab]

AREA TEMÁTICA: A) Información Financiera y Normalización Contable.

Keywords: Goodwill impairment; IFRS 3; IAS 36; DiD; security mispricing

[a] Department of Business, University of A Coruna (UDC), Campus Elviña s/n, 15071 A Coruña (Spain).
[b] Corresponding author.
* This research has received the funding of the Program for the "Consolidation and Structuring of Competitive Research Units - Research Networks (Redes de Investigación)" (Ref. ED341D R2016/014), Proxectos Plan Galego IDT, from the Xunta de Galicia (Spain).

Change in goodwill regulation: impact on security mispricing of listed firms

Abstract

We contribute to the literature on goodwill amortisation vs. impairment in two instances. First, using a database with all the Spanish non-financial firms with positive goodwill on balance, we describe the impact of the change in regulation in Spain after 2016 on goodwill and impairment figures. Second, focusing on listed firms only, we study the impact of financial reporting of goodwill and impairment on stock prices. In particular, we test whether investors correct for the effects of potentially inflated goodwill balances in prices. Our results are in line with the interpretation that the systematic amortisation of goodwill paired with a periodic impairment test may lead to accounting that better reflects the underlying economics of goodwill. However, this is yet an ongoing research and results should not be taken as definitive.

Keywords: Goodwill impairment; IFRS 3; IAS 36; DiD; security mispricing

1. Introduction

The debate on goodwill amortisation vs. goodwill impairment is constant over the last two decades. American SFAS 142 was the first to eliminate the systematic amortisation of goodwill, replacing it with periodic impairment tests. In the IFRS/IASB sphere, a similar decision was taken with IFRS 3 / IAS 36. In Spain, the 2008 accounting reform was aligned with IFRS 3, but since 2016 systematic amortisation of goodwill was again required, following the EU Directive 2013/34 for non-listed firms.

Most of the recent academic literature studies the introduction of impairment tests (e.g., André et al., 2015; Cheng et al., 2018). However, the Spanish case allows for the analysis of the inverse transition. The motivation of this article is to analyse the new "turn-around" requiring again the systematic amortisation of goodwill. In particular, we contribute in two instances. First, we perform a similar 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. In addition, 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. Second, 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 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 and financial performance. Finally, Section 6 provides a set of conclusions.

2. Hypothesis development

2.1 Regulation on goodwill and the impact on stock prices

Accounting for goodwill, and for goodwill impairment and amortisation in particular, has been a controversial issue for decades. Both in the FASB and IASB environment there has been constant change of regulation, sharpening the debate. The first years of the 21st century saw the generalization 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.

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 Spain – where this study is focused - the 2008 reform of the General Accounting Plan applied goodwill impairment tests. However, since 2016, with the transposition of the European Directive, the systematic amortisation of goodwill linearly over 10 years (unless a different useful life is justified) is again required. 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 recognition of goodwill.

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 properly recognized in stock prices. Most of these studies find that 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.

2.2 Hypothesis development

We first analyse the change in regulation in Spain in year 2016, to describe its impact over goodwill and impairment figures. 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. More specifically, advocates of goodwill amortisation argue that goodwill balances have constantly increased their relative weight on balance sheets (EFRAG, 2016). Hence, we will check 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. Consequently, we formulate the following hypothesis:

> ***H1:*** *Market-to-book values (MBV) of firms with positive goodwill balances increased relative to control firms after the introduction of the amortisation method.*

Secondly, we aim to study the consequences of financial reporting on goodwill and impairment. Recent articles such as Li and Sloan (2017) and Cheng et al. (2018) analyse the introduction of impairment tests. We seek to analyse the opposite case: how going from impairment regulation (before 2016) to goodwill amortisation (after 2016) in Spain affected business performance and stock prices. Focusing 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, hypothesis H1 is tested using a difference-in-differences (DiD) approach that 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:

$$\mathrm{MBV}_{it} = \gamma_0 + \gamma_1 D_i + \gamma_2 T_t + \gamma_3 D_i T_t + \omega_{it} \qquad (1)$$

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. According to the hypothesis, higher book values due to inflated goodwill balances are expected for firms in the treatment group before 2016. Consequently, MBV ratios are expected to be lower with the impairment method and increase relative to the control group after the change in regulation. Hence, the coefficient of interest is γ3, with γ3 > 0 (with γ3 > γ2) required for H1 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).

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 recognized 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 taking into account that we are dealing with the inverse transition from impairment regulation 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 stock 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-hold return over fiscal year *t-1* in excess of the buy-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 have 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 due to the higher weight of intangibles not recognised on the balance sheet, 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 firms declaring goodwill in the past decade includes only a small number of cases. Hence, in what follows 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 list 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. 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.[1] 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 1. Evolution of goodwill from 2012 to 2019, in absolute and relative terms.

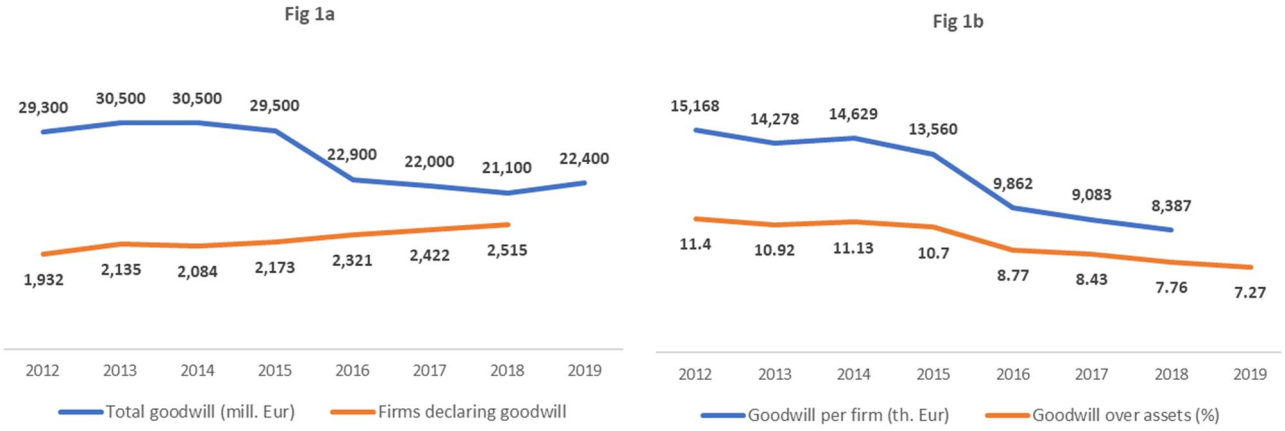
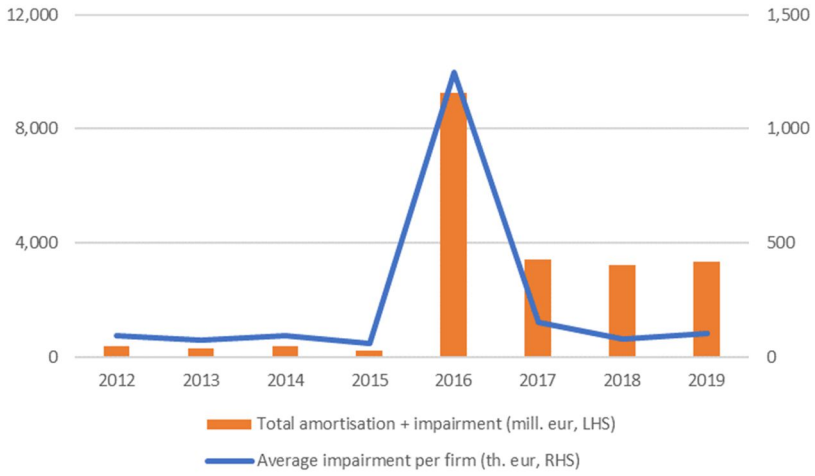


Figure 2 provides a similar interpretation for the impairment and amortisation measures. First, we may clearly observe the effect of the transitional provision in 2016: firms amortised goodwill against reserves about twice as much as they would amortise annually in the subsequent period. Here considered as impairment – as firms voluntarily recognize an impairment loss that they did not record during the impairment years – this represents more than 10 times the annual impairment they recognized in the past. Moreover, and surprisingly, the average impairment recognised during the amortisation period was slightly higher in 2017 and 2019 than during the impairment period. All these effects sum up in the evidence that the impairment recognised annually before 2106 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 the Figure 1.

[1] 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 Commercial Registry, or because BvD has not yet completed the upload). Hence, we consider the figure of firms declaring goodwill in 2019, well below 2,000 firms, is biased, and do not include it in the Figure.

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



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, among others. Hence, we start by comparing the breakdown of goodwill by sector for listed and all (listed and unlisted) firms – see Table 1.[2]

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).

[2] 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).

Table 1. Average goodwill figures by industry and year.

ALL FIRMS

Industry	primary sector	manufact. & energy	construct.	commerce	transport	hospitality	professional services
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

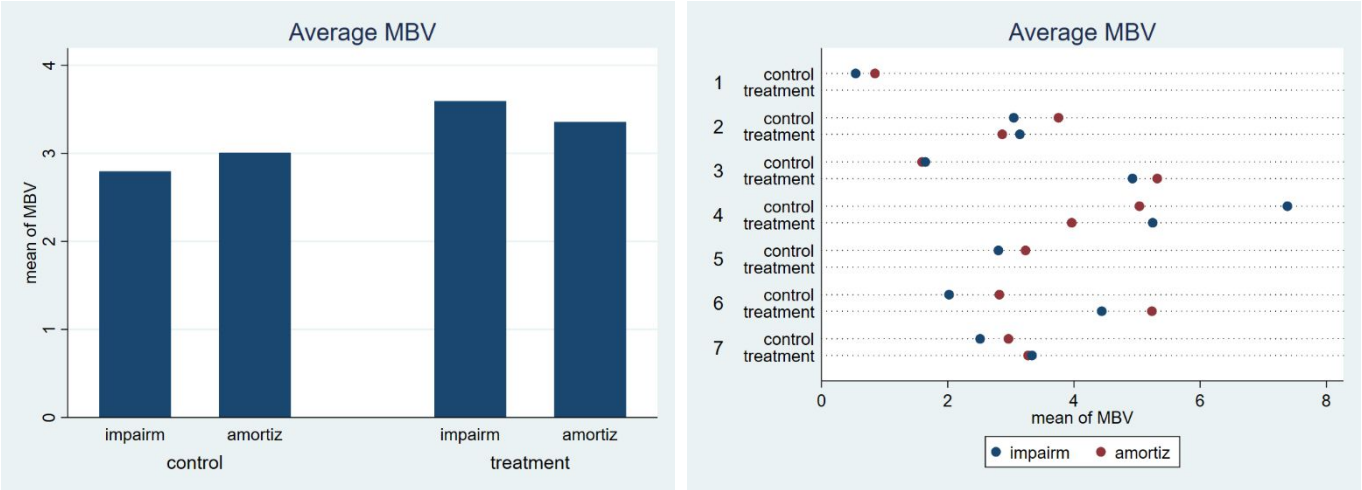
Industry	primary sector	manufact. & energy	construct.	commerce	transport	hospitality	professional services
year-firms	0	80	24	16	0	8	192
%	0.0%	25.0%	7.5%	5.0%	0.0%	2.5%	60.0%
Year							
2012	0	13,613	212,994	35,956	0	0	357,851
2013	0	14,827	212,994	35,930	0	0	349,884
2014	0	13,358	212,994	21,421	0	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**

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 to 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). The argument by defenders of the impairment method (higher goodwill figures are related to intangibles not recognised in the balance sheet)

implies that the MBV ratio of the treatment group should have increased more (fallen less) after the comeback to systematic goodwill amortisation in 2016. Figure 3 provides the average MBV ratios of both groups, before and after 2016, and their breakdown by industry.

Figure 3. Average MBV ratios for treatment vs. control firms, and breakdown by industry.



1. Primary sector; 2. Manufacturing; 3. Construction; 4. Commerce; 5. Transport; 6. Hospitality services; 7. Professional services

On the contrary, in a context (years 2016 to 2019) where the average MBV ratio of the Spanish listed companies increased, the book value of those that reported goodwill in some year between 2012 and 2019 moved away from their market value. 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 decreasing 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, the overall result favourable to the amortisation regulation 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 balances. Needless to say, we are constrained by this limited data so, 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. Nonetheless, most of them are traded funds and SICAVs. We identify them as listed under the NACE code 6430 "Trusts, funds and similar financial entities" and exclude them, together with any other financial companies. Moreover, we double-check with the list of Spanish SICAVs (open-ended mutual funds) provided by *Bolsas y Mercados Españoles*

(BME), 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 one hand, the pre-2016 period goes from 2012 to 2015 (with accounting information from year 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 acquisition of the goodwill until 2015. For the purposes of this analysis, this amount is considered impairment.

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, any firms with less than two years of market data are filtered out.

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

						Firms with goodwill impairment		
Year	Listed firms	Treatment firms	Positive goodwill (N)	GW_A_{t-1}	GW_A_{t-1} overall	n	n/N	Imp_t / GW_A_{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%	3	12.5%	4.66%
Subtotal	**896**	**152**	**89**	**4.69%**	**0.94%**	**10**	**11.2%**	**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 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 in the decade of analysis.

The average beginning goodwill to assets (labelled GW_A_{t-1}) is 0.94% (4.69% if only firms in the treatment group are considered). Goodwill impairments were recognized in 11.2% 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 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. 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)

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, IMPind of control firms can only take values 0 and 1, so the average indicator is now obviously higher for impairment than for non-impairment firms (+0.545 vs -0.230), with statistical significance. The impairment sample also has 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 statistically 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 $p\approx0.05$. 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 Li and Sloan (2017), the results for the change in regulation in Spain in 2016 suggest that investors anticipate some untimely impairment. However, the significance of 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 (3)–(1) column: the differences in the values of the indicators for firms with impairments 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

Hypothesis H1 is now tested using the DiD described in section 3.1. The results are provided in Table 4. The coefficient of interest is γ_3: for H1 to hold it is required that $\gamma_3 > 0$ (with $\gamma_3 > \gamma_2$). On the contrary, $\gamma_3 = -0.44$, but with no statistical significance, and smaller than γ_2. This is coherent with the results anticipated in the descriptive analysis (section 4.1); however, the reduced number of cases available limits the power of the statistical tests. Likewise, the regressions by sector suggest that MBV ratios decreased for treatment firms in professional services and increased in commerce, but both again with no statistical significance.

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

```
Linear regression                               Number of obs     =      1,276
                                                F(3, 1272)        =       1.02
                                                Prob > F          =     0.3826
                                                R-squared         =     0.0030
                                                Root MSE          =     4.3428
```

MBV	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
FC	.7967849	.5827757	1.37	0.172	-.3465225	1.940092
P2	.2116777	.2659247	0.80	0.426	-.3100215	.7333769
DT	-.4484565	.7106421	-0.63	0.528	-1.842616	.945703
_cons	2.794519	.2086117	13.40	0.000	2.385259	3.20378

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 clear evidence to be able 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 5.

First of all, 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 they continued to overvalue those stocks with the amortisation method.

Table 5. 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.

	Pre-2016 period										**Post-2016 period**									
	Treatment						Full sample					Treatment						Full sample				
Portfolio formed on $IMPind_{t-1}$	N	$IMPdum_t$		N	ER_t (%)		N	$IMPdum_t$		N	ER_t (%)		N	$IMPdum_t$		N	ER_t (%)		N	$IMPdum_t$		N	ER_t (%)	
$IMPind_{t-1}$ = -1	48	0.000		30	-6.39%		419	0.000		249	-4.29%	***	44	0.023		35	1.08%		516	0.002		423	-3.02%	***
		(.)			(-1.26)			(.)			(-2.44)			(1.00)			(0.24)			(1.00)			(-2.41)	
$IMPind_{t-1}$ = 0	77	0.065	**	66	-2.73%		272	0.018	**	190	-4.46%	**	90	0.056	**	76	-3.52%		308	0.016	**	222	-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	***	15	-11.8%	*	21	0.286	***	15	-11.8%	*	13	0.231	**	10	-19.1%	**	13	0.231	**	10	-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)**	

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.[3]

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.

6. Conclusions

This article delved into the debate on goodwill amortisation vs. impairment. On the one hand, we described the impact of the change in regulation over goodwill and impairment figures, to observe whether the aggregate value of goodwill decreased after the introduction of the amortisation method in year 2016, and whether MBV ratios of firms with positive goodwill balances increased relative to control firms. On the other hand, we studied the impact of financial reporting of goodwill and impairment on stock prices. Focusing on listed firms, we examined whether stock prices did not fully anticipate the untimely nature of goodwill impairments in the pre-2016 period.

Regarding the overall impact on goodwill and impairment figures, 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 to great extent

[3] 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.

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. We tested the relative performance after 2016 of the MBV ratios of listed firms with goodwill in their balances: contrary to the interpretation of defenders of the impairment method, we find no evidence that higher goodwill figures are related to intangibles not recognised in the balance sheet, although the reduced number of cases available prevent us from obtaining statistically sound results.

Regarding the impact of untimely impairment recognition in terms of security mispricing, our results are again restricted by the reduced number of listed firms in Spain 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. Finally, we find that investors keep overvaluing firms with inflated goodwill balances also after 2016 with the amortisation method, suggesting that the effects of the impairment method linger.

These results would be in line with most 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). However, this is yet an ongoing research: both checking for possible errors and some robustness tests are still pending, so these results should not be taken as definitive.

REFERENCES

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

Carvalho, C., Rodrigues, A.M., Ferreira, C. (2016). Goodwill and Mandatory Disclosure Compliance: A Critical Review of the Literature. *Australian Accounting Review* 26(4), 376-389.

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

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

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

Knauer, T., Wöhrmann, A. (2016). Market reaction to goodwill impairments. *European Accounting Review* 25(3), 421-449.

Li, KK, Sloan, RG (2017). Has goodwill accounting gone bad? *Review of Accounting Studies* 22, 964-1003.

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

Schatt, A., Doukakis, L., Bessieux-Ollier, C., Walliser, E. (2016). Do goodwill impairments by European firms provide useful information to investors? *Accounting in Europe* 13(3), 307-327.