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## Goodwill impairment testing under IFRS before and after the financial crisis: evidence from the UK large listed companies

### Abstract

The use of fair value in financial reporting has been a critical issue for some time. In the last five years, after the boom phase of company takeovers, with the financial crisis spreading to the general economy, impairment testing for goodwill has taken center stage and has become a hot topic.

This paper investigates and compares the disclosure level of the goodwill impairment testing process during 2007-2011 in the major listed companies in the UK. The authors review the annual reports of 85 non-financial firms, ranked by market capitalization and total assets, that were listed on the London Stock Exchange and recognized goodwill as an asset; then, they examine all the information provided by the companies about the estimation of the “recoverable amount” using a DCF model according to IAS 36; based on the financial information given in the annual reports during 2007-2011, the core valuation techniques has been divided as follows: (1) identification of cash generating units; (2) scenario analysis and forecast of free cash flows; (3) estimation of “terminal value”; (4) cost of capital and g-rate calculation; (5) sensitivity analysis. Evidence shows a lack of disclosure on the key assumptions of the estimation model required by IAS 36, especially after the world economic and financial crisis (2009-2011).

The findings should be of interest to underline some questions related to both the effectiveness of goodwill impairment tests under uncertainty and disagreement in economic and financial forecasting and the value-relevance of the specific information given in the annual accounts of non-financial listed companies in the UK.

**Keywords:** goodwill, impairment test, financial crisis.

**JEL Classification:** M41, G21, G30.

### Introduction

According to the 2004 version of the IAS 36, companies are required to perform an impairment test of goodwill on at least a yearly basis, in order to estimate the recoverable amount and write down the value recognized in the financial statements if the recoverable amount is lower than the carrying amount.

IAS 36 defines the recoverable amount of goodwill as the higher of the “value in use” or the “fair value less cost to sell”; if “fair value less costs to sell” cannot be reliably estimated, then the “value in use” of the asset can be adopted as its recoverable amount.

To estimate the “value in use” of the asset, companies first estimate the future net cash flows to be derived from the asset’s use, then apply the appropriate discount rate to those future cash flows.

Cash flow projections should be based on reasonable and supportable assumptions about the economic conditions that will exist over the remaining useful life of the asset, with greater weight being given to external evidence. According to IAS 36, companies should use the most recent budgets and forecasts, that is not expected to go beyond five years; beyond five years, companies extrapolate from the earlier budgets, using a steady

or declining growth rate not to exceed the long-term average growth rate for the products, industries, or countries in which firms operate, or for the market in which the asset is used.

In calculating the value in use, it appears that widespread use is made of the DCF (Discounted Cash Flow) method. The DCF model, according to IAS 36 provisions, requires a specific analysis to be carried out with regard to:

- ◆ the identification of the cash generating units (CUGs);
- ◆ the expected scenario in terms of future cash flows for a defined estimation period;
- ◆ the estimation of the sustainable long-term cash flow (the “terminal value”);
- ◆ the selection of a long-term growth rate (g-rate) and of a discount rate for future cash flows, identified – as appropriate – as the Weighted Average Cost of Capital (*Wacc*) or the Cost of Equity (*Ke*).

As we can see, the whole estimation process is based on key assumptions highly discretionary; furthermore, the “value in use” calculation through the DCF method has become even more critical since the economic conditions have deteriorated significantly as a result of the global financial crisis started in 2008.

In corporate reporting terms, the consequence of these change in economic conditions may be a need for additional disclosures in annual accounts of

listed firms, to explain that the value of recognized goodwill has decreased closing the gap on its book value or that the likelihood of impairment losses in future has increased.

The accounting rules have been revised in recent years to require more disclosure about risks and uncertainty; in particular, IAS 36 requires companies who recognize goodwill in annual reports to disclose the key assumptions and the approach adopted in the making of those assumptions when using DCF models to check that goodwill does not need to be written down; IAS 36 also requires more detailed quantified and narrative disclosures when a “reasonably possible change” in key assumption would have caused an impairment loss at the period end.

The process followed by management to determine any impairment losses according to the above mentioned variables is not always disclosed in annual reports, even though this process, and its outcomes, are value-relevant for investors, especially during financial and economic crisis.

In view of the above, in this paper we examine the ways in which disclosure of the impairment process by British leading industrial listed firms has developed.

This study has been conducted by selecting a sample of 100 British industrial groups and examining their annual reports for the period of 2007-2011 with reference both to the amount of goodwill recognized in the balance sheet and the impairment test process carried out according to IAS 36 provisions.

Companies were selected if they had reported any amount of goodwill; therefore, even if the sample consists of 100 companies, only 85 annual reports have been examined by comparing the disclosure of accounting policies about the impairment test of goodwill during the period of 2007-2011.

The paper is structured as follows. Section 1 contains a literature review. Section 2 describes the methodology. The main findings are examined and discussed in section 3. The final section contains some concluding remarks taken from the results of comparisons and analyses carried out in Section 3.

## 1. Literature review

The goodwill impairment test has been widely discussed in literature, especially since the SFAS 142 (2002) and IAS 36 (2004) standards were revised in the United States and Europe.

Some of the contributions in literature focus primarily on the value-relevance of goodwill impairment testing; the relationships between the impairment process, the dynamics of company stock prices and investor expectations are examined

(Fields, 2001; Chen et al., 2004; Duangploy et al., 2005; Ramanna and Watts, 2009; Li et al, 2011; Bens et al., 2011; Abu Ghazaleh et al., 2012). In particular, Chambers and Finger (2011), referring to analyses conducted prior to 2008, showed that companies tend to avoid, reduce or delay goodwill impairments. Carlin and Finch (2009), focusing on the discount rate variable, agree with these conclusions, highlighting the potential manipulation of this process. Eldridge (2005), Carlin, Finch and Kaiying (2010), as well, pointed out how companies have developed mechanisms designed to manage the timing of undesired impairment losses, in some cases, by the manipulated identification of CGUs.

Some of the contributions in literature however focus on evidence from impairment testing disclosures. Carlin, Finch et al. (2008), made an assessment of disclosure quality and compliance levels by large listed Australian firms; the Financial Reporting Council in 2008 demonstrated that there are opportunities for companies to refine and increase their goodwill disclosure, especially after the Financial Crisis; Petersen and Plenborg (2010) examined how firms implement impairment test as required by IAS 36, carrying out a survey which includes 58 questionnaires representing 73% of the Danish listed firms. There is no other evidence of similar researches and surveys relating to goodwill impairment test in the banking sector and with specific regard to the changes in disclosure occurred before and after the financial crisis.

This study contributes to existing literature in the following aspects.

To begin with, we demonstrate that the recognition of goodwill impairment losses occurs when the economic and financial crisis occurs, especially in 2008 and 2011 (Camodeca and Almici, 2012). In this respect, however, we agree with Li and Sloan (2011), who demonstrate that goodwill impairment decisions by management are a delayed response to the substantial expiration of the benefits from goodwill.

Secondly, we highlight an increase in disclosure after the financial crisis (despite the absence of disclosure regarding a number of important impairment test components, such as the “terminal value”).

Thirdly, we underline some critical aspects of the goodwill impairment testing under the IAS 36: the significant differences found in comparisons carried out demonstrate the high discretionary level of the process and in general the lower degree of reliability of the fair value accounting in a context of financial turmoil, such as that which has developed since 2008.

## 2. The research question and methodology

The paper aims at answering to the following research questions concerning the goodwill impairment process in the major non-financial companies listed on the London Stock Exchange during the period of 2007-2011:

1. What is the level of disclosure regarding the goodwill impairment process with reference to a typical “market for control” context, like the United Kingdom?
2. Did UK listed companies increase level of disclosure about the goodwill impairment process after global economic and financial crisis?

In order to answer the above questions, we examined 85 major non-financial companies listed on the London Stock Exchange, selected according to market capitalization and total assets as of December 31, 2011; then we used a “content analysis” in order to collect all the information about the key assumption

in the the goodwill impairment process provided by the companies in their annual accounts from 2007 to 2011; at last, we obtained a unique data-set that give in-depth information concerning how impairment test of goodwill have been carried out and the level of disclosure about the key assumptions in calculating the value in use through the DCF method.

In light of the above, our attention was mainly focused on the following aspects: valuation approach; identification of cash generating units; estimation period for cash flows; estimation of “terminal value”; growth rates and discount rates calculation; sensitivity analysis.

## 3. The findings

**3.1. Goodwill and impairment losses: overview 2007-2011.** From 2007 to 2011, the selected UK non-financial listed companies recorded significant amounts for goodwill before any impairment, especially during 2010 and 2011 (Figure 1).

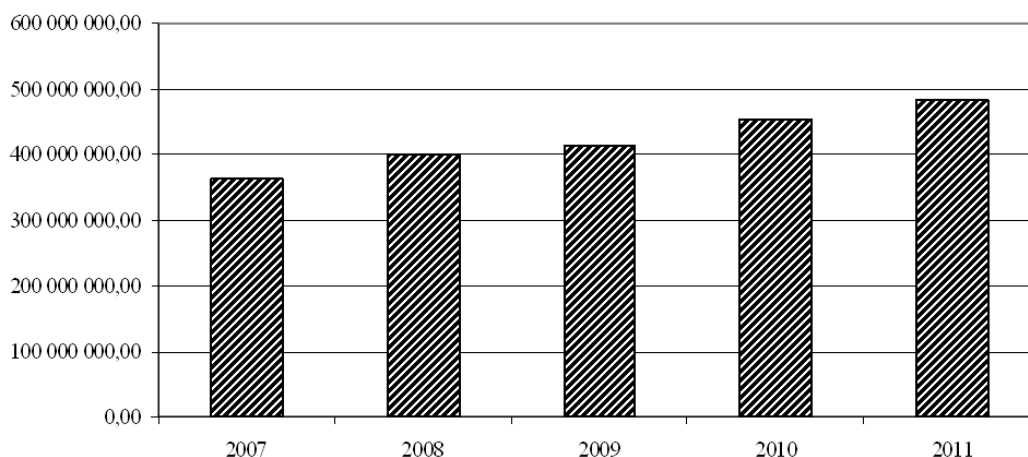


Fig. 1. Goodwill before impairment test in English companies (EUR mln)

Generally, the goodwill recorded has a relevant incidence on shareholders' equity for the period (on average 36%), while that on total assets (an average of 10%) is more limited (Figure 2).

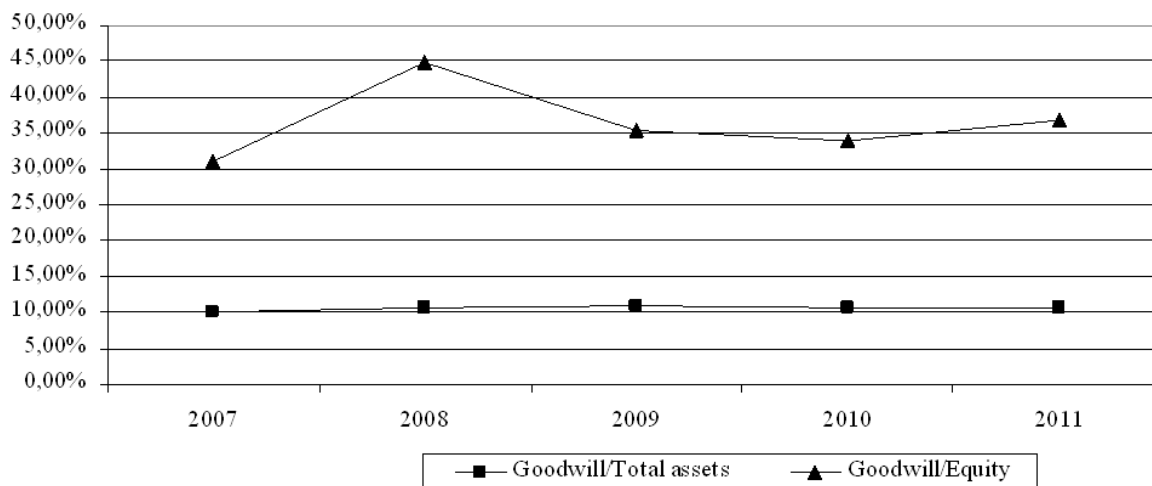


Fig. 2. Goodwill incidence on total assets and equity

The goodwill shown above was mainly written down for impairment in 2007, the year before the one in which financial crisis had the biggest im-

pact (see Figure 3). Since 2007, impairment losses trended downwards (2008-2010), but peaked again in 2011.

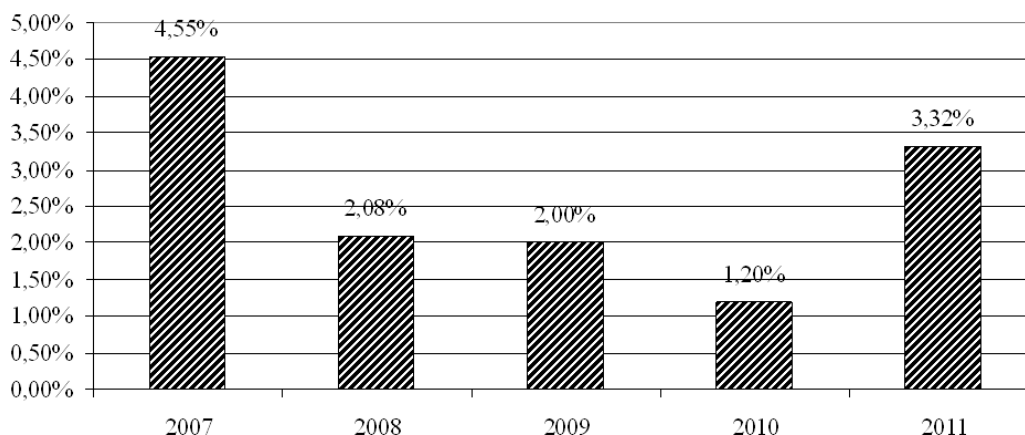


Fig. 3. Impairment losses incidence on Goodwill for UK non-financial companies

**3.2. The disclosure about goodwill impairment process of 2007-2011.** According to IAS 36, par. 6, the core topic in the goodwill impairment testing process is estimating the recoverable amount, as defined above.

Table 1 shows that the companies examined adopted both the “value in use” (65%) and the “fair value less cost to sell” (34%) to estimate the recoverable amount of goodwill, for the entire period considered.

Only one out of a total of the 85 non-financial companies examined apply a combination of fair value and value in use methods for the entire period.

Table 1. Recoverable value and method of calculation 2007-2011

Sector	Value in use method	Fair value method	Mixed method*
Industrial	55	29	1
Whole sample	55	29	1

Note: fair value plus value in use.

Estimating the “value in use” the Discounted Cash Flow model has been always applied according to the following formula:

$$RA = \sum_{t=1}^n \frac{CF_t}{(1+Ke)^t} + \frac{CF_n \times (1+g)}{(Ke_{n+1} - g) \times (1+Ke)^{(n+1)}}, \quad (1)$$

where  $RA$  is the recoverable amount;  $CF$  is the expected cash flow related to the selected cash generating unit;  $Ke$  is the cost of equity;  $g$  is the growth rate.

In particular, according to DCF model, these core evaluation topics have been investigated:

- ◆ cash generating units;
- ◆ estimation period;
- ◆ terminal value;

- ◆ cost of equity and g-rate calculation;
- ◆ sensitivity analysis.

The results of the analysis are shown in the tables below for each of the topics above selected.

**3.2.1. Cash generating units.** According to the information provided by the data-set, CGUs have been identified as follows:

- ◆ type of product/service provided;
- ◆ major business lines;
- ◆ geographical location.

The results are summarised in Table 2 (a, b and c); on this basis we underline that:

- ◆ 19% of the sample identified CGUs based on geographical location;
- ◆ 32% of the sample identified CGUs based on major business lines;
- ◆ 3% of the sample identified CGUs based on type of goods or service provided;
- ◆ 46% of the sample does not make any disclosure regarding the identification of CGUs.

In this regard, no significant variations emerged between the choices made before the global crisis (2007) and those made in the years immediately following (2008-2011). Sometimes, in the post-crisis period, additional CGUs have been recognized given the specific country-risk conditions inherent in certain regions.

Table 2a. Number of CGUs

No of CGUs	2007*	2008*	2009*	2010*	2011*
1-3	12	12	14	13	13
4-8	23	21	21	21	21
9-15	4	6	5	5	8
> 15	4	3	5	4	5
Not disclosed	42	43	40	42	38

Note: \* Number of companies.

Table 2b. Identification of CGUs

No of companies	Geographical location	Major business lines	Type of product-service provided	Not disclosed
16	X			
3			X	
27		X		
39				X

Table 2c. IAS 36 compliance

Number of companies	Yes	No	Not disclosed
2		X	
42	X		
41			X

To summarize, we can note that the disclosure about the CGUs selection is rather poor during the whole period investigated; moreover, the International accounting standards 36 compliance about the topic is not disclosed from about 50% of the companies.

3.2.2. *Estimation period.* The estimation periods have been summarized in Table 3 (a and b).

Table 3b. Estimation period disclosure: 2007-2011

Estimation period disclosure	2007	%	2008	%	2009	%	2010	%	2011	%
Disclosed	46	54%	47	55%	48	56%	45	53%	49	58%
Not disclosed	39	46%	38	45%	37	44%	40	47%	36	42%
Whole sample	85		85		85		85		85	

As shown in Table 3b, we can see a lack of disclosure on the estimation period during the whole period considered; on average, only 55% of non-financial companies give the information about the forecast horizon adopted.

3.2.3. *Estimation of terminal value.* The Terminal Value is calculated according to the following formula:

$$TV = \frac{CF_n \times (1 + g)}{(Ke_{n+1} - g) \times (1 + Ke)^{(n+1)}} \quad (2)$$

Although the terminal value usually has a significant weight in determining recoverable amount, it is not disclosed by any of the companies surveyed. In this regard, the companies generally only provide the calculation formula and the adopted growth rate (g-rate).

With reference to the g-rate, we found non-homogenous data; the disclosure levels have been summarized in Table 4, which shows that:

- ♦ only 24% of non-financial companies give information on the parameter used to estimate the g rate, in general the expected inflation rate; on average 45% of the sample do not provide any information regarding the g-rate;

Table 3a. Estimation period

Number of years	2007*	2008*	2009*	2010*	2011*
1	2	2	2	2	3
3	6	6	5	5	5
5	26	27	29	26	29
8	1	1	1	1	1
10-12	10	10	10	10	10
25	1	1	1	1	1
Not disclosed	39	38	37	40	36

Note: \* Number of companies.

Where information is provided, Table 3a shows that:

- ♦ the majority of the non-financial companies (31%) declare an estimation period of five years;
- ♦ the 12% of companies declare an estimation period of 10 to 12 years;
- ♦ only one firm declares an estimation period of twenty-five years.

With reference to the above-stated data, we can underline that the length of the period is the same, even in the years after the economic and financial crisis.

Disclosure relating to the estimation period is shown in Table 3b.

- ♦ the remaining industrial groups show the g-rates used without pointing out the reference parameters on which the selection is based.

Furthermore, a comparison of the data reported in Table 4 shows that the adopted g-rates vary significantly, between 3% to 11% in the period under review.

Finally, 95% of the sample show constant rates over the period, while 5% show differing rates in every period.

Table 4. G-rate

G-rate**	2007*	2008*	2009*	2010*	2011*
0-3%	29	32	30	29	29
4%-6%	9	9	11	10	10
7%-11%	2	0	0	2	0
Not disclosed	45	44	44	44	46

Notes: \* Number of companies; \*\* average of single CGUs rates.

3.2.4. *Cost of equity calculation.* According to the annual accounts investigated, only 46% of the sample of industrial groups provide information about the discount rate, while the remaining 54% do not make any disclosure. The data reported in Table 4 show the following information:

- ◆ the discount rate adoption presents a constant trend;
- ◆ the majority of companies adopted a high discount rate between 9% and 24%, reflecting a prudent approach;
- ◆ only a limited number of companies adopted a low discount rate in the investigated period.

Table 5. *Ke* rate

<i>Ke</i> -rate*	2007*	2008*	2009*	2010*	2011*
6%	4	3	4	4	4
7,5%	2	2	2	2	2
8%	7	8	8	7	7
9-24%	26	26	26	26	26
Not disclosed	46	46	45	46	46

Notes: \* Average of single CGUs rates, \*\* number of companies

**Sensitivity analysis.** The sensitivity analysis enables the effects in terms of increase or decrease in the recoverable amount to be measured in relation to the variation of two particularly critical components in the adoption of the DCF method: the *Ke* rate and g-rate; the sensitivity analysis – when reported in the annual accounts – gives operators greater awareness of the estimating process of the recoverable amount.

On this point, we found that 59% of the sample does not provide any information for the period under review, while 41% of the sample provides information during the period, especially since 2008.

The level of disclosure of the results obtained is therefore low overall; information is provided only since 2008, and from some companies it is completely absent.

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Table 6. Sensitivity analysis

Sector	Disclosed	Not disclosed
Industrial	35	50
Whole sample	85	85

## Conclusions

The empirical findings show that the level of disclosure on the key assumptions of the components of the DCF formula is generally lacking for the entire period examined; moreover, despite the IAS 36 requirement, our analysis showed that no more disclosure were provided since the economic conditions have deteriorated significantly as a result of the global financial crisis started in 2008.

However, the level of disclosure varies substantially for each topic considered, and is generally lower – or poor in some cases – for the key assumptions that most influence the estimate of the recoverable amount (discount rate, g-rate, terminal value).

Our research further sheds light on some critical issues about the model set out in IAS 36 revised; these critical issues, already highlighted since the beginning of the period (Dagwell et al., 2004), seem to be confirmed with specific reference to the selected sample, mainly in light of the instability and uncertainty created by the global economic and financial crisis.

In particular, we noted on the one hand the high discretionary level of the key assumptions in the calculation model and on the other their variability in relation to the concrete behavior of each company; if considered after the financial crisis, all this raises well-grounded doubts on the usefulness and overall reliability of the current estimation model for the recoverable value of goodwill.

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