

# **The Influence of Goodwill Impairments on Stock Prices: Some Greek evidence**

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## **1. Introduction**

The implementation of IFRS raised new questions for the quality of accounting information and specifically for earnings quality (Barth et al., 2008) and generated the need for further research on various accounting topics. Most of the changes that were imposed by the IFRS, aim at increasing the information content of financial statements. The introduction of annual impairment tests for goodwill under both alternative valuation methods (cost model and revaluation model) is one of these changes.<sup>1</sup>

Impairment tests are defined as “the procedures that an entity applies to ensure that its assets are carried at no more than their recoverable amount”<sup>2</sup>.

Impairment tests lead to the faster incorporation of bad news about an asset, in the financial statements. Therefore, it is expected that the faster incorporation of the new information in the financial statements will lead to more value relevant accounting data assuming that the market is efficient at least in the semi-strong form.<sup>3</sup> Specifically, the faster is the incorporation of information about the firm in the financial statements, the more value relevant is an accounting variable and thus the more significant is its association with stock prices. However, since impairment is an indication of reduced value of the firm it is expected that it will lead to a reduction in the level of stock prices and thus impairments should be negatively correlated with stock prices.

The purpose of this paper is to examine if impairments of goodwill have explanatory power for stock prices and especially if this information content is negatively related to the level of stock prices. The study uses an unbalanced panel of Greek Firms, listed in the Athens Stock Exchange for the period 2005-2008, as an input to the Ohlson (1995) model. The choice of using Greek data is made based on the premise, that the effects of the introduction of impairment tests for goodwill will be more pronounced, since before the IFRS adoption goodwill was amortized. In contrast, to other

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<sup>1</sup> International Accounting Standard (IAS) 38, par. 74-75.

<sup>2</sup> IAS 36, par. 1.

<sup>3</sup> The term market efficiency refers to the weak form where it is expected that the stock price will reflect all the available information for a given firm.

European countries such as UK, where goodwill impairment tests have been introduced earlier<sup>4</sup> (for example Tollington, 2004).

The results show that goodwill impairments have some information content for stock prices which, as expected, is negatively associated with stock prices. Moreover, the results also show that the per share book value of equity of firms reduces with goodwill impairments. However, no similar effect is observed for the earnings per share of firms that impair their goodwill.

The remainder of the paper is organized as follows: Section 2 offers a review on the literature of the value relevance of goodwill impairments. Section 3 analyses the empirical model and the research Hypotheses. Section 4, describes the dataset and analyses the empirical results and finally, section 5 concludes the study and offers implications for future research.

## **2. Literature Review**

There is a great deal of research that relates to earnings ‘window dressing’. This infers that many researchers believe in the problematic nature of the financial reports content.

Jeanjean and Stolowyand, (2008) inconclusively tried to find out whether the adoption of IFRS helps declining of earnings management. The skepticism for the quality of accounting information is attributed by some researchers to the fact that regulations and standards are not free from flaws (Tweedie, 2007). These flaws are inherent in the accounting disclosures due to their nature. The case of goodwill represents one such problem. The accounting treatment of goodwill has been a subject of debate for many years now, both under the US GAAP and recently under IFRS.

The adoption of IFRS introduced the impairment testing of goodwill in accordance with the US GAAP. This raised questions about the earnings quality since earning management techniques like “big bath” and “smoothing” reporting strategies are possible with goodwill impairment. This led some researchers to focus their studies on the goodwill impairment and specifically on the field of the value relevance of goodwill impairment and its applications to earnings management.

Massoud and Raiborn (2003) have drawn the result that the management is likely to manage earnings when operations decline or differ from financial analysts’ expectations. In the same vein Jordan and Clark (2004) resulted in showing that Fortune 100 companies practiced big bath earnings management in the year of the SFAS 142 adoption. After analyzing the earnings for the firms in 2001 and 2002 they concluded that depressed earnings of 2002 cannot be viewed as impaired goodwill but rather as managed earnings since the impairment procedure could provide such

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<sup>4</sup> Goodwill impairment tests were introduced in UK 1997 with Financial Reporting Standard 10.

earnings only after some years. Jordan and Clark (2005) in a similar study reproduced the same research pattern for smaller firms than those of Fortune 100 and report similar results.

Bens and Heltzer (2004) draw similar inferences and suggest that the goodwill impairment immediately after the adoption of SFAS 142 was used largely for “big bath” by many companies. Also, they assume that management may have anticipated a rather mediocre market reaction to goodwill impairment losses in the SFAS 142 adoption year, and this may have caused many firms to present even larger impairment losses, rather than show decreased earnings in later years and have a more negative market reaction.

Jordan et al. (2007) conclude that firms chose 2002 (SFAS 142 adoption year) as the year to “clear the deck” using the big bath technique and report large goodwill impairment losses and depressed earnings. In that way they could utilize the lack of market’s reaction penalty in a rather anticipated decrease of earnings by the market. Their study also shows that large goodwill impairment losses continued in the years following the SFAS 142 adoption, a fact that provides proof that ‘big bath’ earnings management was used. This may be due to the anticipation that decreasing even more the earnings due to goodwill impairment losses would do little incremental harm to the firms’ market value.

It is easy to understand that findings of this kind raise questions about the information content of goodwill impairment and various studies have focused towards this area of research.

Chen et al. (2008) focuses on the SFAS 142 adoption year in order to investigate the value relevance of goodwill impairments. They try to detect the post adoption market behavior through a comparison of stock returns and goodwill impairment losses, that were reported both in adoption year and in post adoption years. Their conclusion is that impairment losses have informational value for the market, since the impairments are associated with stock returns in 2002 and the next years.

Segal (2004) and Zang (2008) actually divide goodwill impairment into two different portions. The expected by the market portion of goodwill impairment and the unexpected one. So, they compare market’s reaction to these two different impairment groups. Their findings suggest that market’s reaction to expected goodwill impairment loss is rather neutral but the market’s reaction to the unexpected one is negative.

Bens et al. (2007) revisit their previous research and they find that goodwill impairments create a significant negative market effect in an event study analysis. This effect is less significant in cases of firms with low information asymmetry and smaller firms that have difficulty in impairment testing.

Finally, Lapointe-Antunes et al. (2009) show that the decline of goodwill impairment value relevance by the market is not only a US GAAP effect but it can happen in other countries with the adoption of standards that use goodwill impairment instead of amortization. In their findings there is a considerable negative effect between the transitional goodwill impairments and stock prices.

### 3. Research Methodology

#### 3.1 The model

The present study employs the model of Ohlson (1995) in measuring value relevance. The model expresses stock prices as a function of earnings per share and book values per share, which is particularly useful when examining the average relation between the dependent and the explanatory variables. In algebraic notation the model is as follows:

$$Pr_{i,t} = \alpha_0 + \alpha_1 BVPS_{i,t} + \alpha_2 EPS_{i,t} + \varepsilon_{i,t} \quad (1)$$

where:

Pri: is the stock price of firm i measured three months after fiscal year end,

EPS : is the earnings per share of firm i at year t and

BVPS : is the book value per share of firm i at year t.

The measure of value relevance that is employed in this study is the adjusted R2 of the regression model of equation (1). In specific, the higher the adjusted R2 of the model the higher the combined value relevance of earnings and book values per share.

In order to investigate the information content of impairments we construct two portfolios based on the decision of firm to impair its intangible assets. In that vein firms are ranked in two groups based on the decision to impair or not and two portfolios are constructed denoted as *Imp Portfolio* (firms that recognize impairment) and *No Imp Portfolio* (firms that do not recognize an asset impairment). The portfolios are constructed separately for each year. Then, the model of equation (1) is estimated and the measure of value relevance is assessed. Moreover, any reduction in the slope coefficients of book values per share and earnings per share are interpreted as a reduction in the correlation between the accounting variable and the stock prices. However, to fully investigate the effects of goodwill impairments on the book values and the earnings per share we also estimate the model of equation (1) using only book values or only earnings as the independent variable as follows:

$$\text{Pr } i_{i,t} = \alpha_0 + \alpha_1 \text{BVPS}_{i,t} + \varepsilon_{i,t} \quad (2)$$

and

$$\text{Pr } i_{i,t} = \alpha_0 + \alpha_1 \text{EPS}_{i,t} + \varepsilon_{i,t} \quad (3)$$

where all variables are as defined in equation (1).

### 3.2 Research Hypotheses

The first research hypothesis (**H1**) concerns the relation between the recognition of goodwill impairments and the stock price. Consistent with findings in the literature it is hypothesized that the decision to impair is related to lower stock prices. This hypothesis is based in the premise that the level of goodwill is related to future growth prospects of the firm and the recognition of an impairment means that the growth prospects of the firm are reduced. Thus, the first research hypothesis is:

**H1:** The recognition of a goodwill impairment is related with reduced future prospects of the firm and reduced stock prices

The second research hypothesis (**H2**) is related to the relation between the information content of earnings and book values per share and the decision to impair or not. It is expected that the recognition of a goodwill impairment leads to higher value relevance of accounting data since it results in faster incorporation of new information in accounting data. Therefore, the second research hypothesis is as follows:

**H2:** The recognition of a goodwill impairment is related with higher value relevance of accounting data

## 4. Empirical Results

### 4.1 Descriptive Statistics of the Dataset

The dataset consists of industrial firms listed in the Athens Stock Exchange for the period after the implementation of the IFRS (2005-2008). The primary sample consisted of all the industrial firms and was drawn from the Hellastat database (accounting data) and the ASE database (stock price data). To avoid the effects of outliers all observations that fall in the upper and lower 1.5% of the variables' distribution were winsorized. Table 1, shows the descriptive statistics on the key variables. The final sample consists of 199 firms with 637 observations.

**Table 1**  
**Descriptive Statistics**

	PRI	BVPS	EPS
Mean	3.56	2.43	0.25
Median	1.83	1.84	0.13
Maximum	27.52	11.07	3.22
Minimum	0.22	0.16	-0.74
Std. Dev.	4.48	2.01	0.50
Skewness	2.65	1.64	2.23
Kurtosis	10.58	5.93	11.13

Notes: The final sample consists of 199 firms with 637 observations for the period 2005-2008. The variables definitions are as follows: Pri: is the stock price of firm i measured three months after fiscal year end, EPS: is the earnings per share of firm i at year t and BVPS: is the book value per share of firm i at year t.

#### 4.2 Results on the Estimation of the Models

Panel A of table 2 presents the results of the estimation of the model of equation (1). The first line denoted as All presents the results of the full model for the period 2005-2008 and the rest two lines, (denoted as No Imp and Imp, respectively), present the results of the portfolios of firms that do not record an impairment (No Imp) and of firms that record an impairment (Imp) in a given year respectively.

**Table 2****Results of the Full Model**

$$Pr_{i,t} = \alpha_0 + \alpha_1 BVPS_{i,t} + \alpha_2 EPS_{i,t} + \varepsilon_{i,t}$$

<i>Panel A: No Fixed/Random Effects</i>							
<i>Portfolio</i>	$\alpha_0$	<i>t-stat</i>	$\alpha_1$	<i>t-stat</i>	$\alpha_2$	<i>t-stat</i>	<i>Adj. R2</i>
All	0.95	5.25*	0.49*	7.42	5.64*	21.16	0.58
No imp	0.93	5.15*	0.49*	7.43	5.42*	20.18	0.57
Imp	1.30	1.24	0.60***	1.70	7.55*	5.74	0.62
<i>Panel B: Fixed/Random Effects</i>							
<i>Portfolio</i>	$\alpha_0$	<i>t-stat</i>	$\alpha_1$	<i>t-stat</i>	$\alpha_2$	<i>t-stat</i>	<i>Adj. R2</i>
All	1.14*	4.66	0.51*	6.25	4.85*	17.26	0.43
No imp	1.16*	4.71	0.50*	6.11	4.57*	16.84	0.42
Imp	1.30	0.84	0.60	1.16	7.55*	3.92	0.62

**Notes:** The final sample consists of 199 firms with 637 observations for the period 2005-2008. \*, \*\* and \*\*\* indicates significance at the 1%, 5% and 10% significance level respectively. The variables definitions are as follows: *Pri*: is the stock price of firm *i* measured three months after fiscal year end, *EPS*: is the earnings per share of firm *i* at year *t* and *BVPS*: is the book value per share of firm *i* at year *t*.

The results show that the combined value relevance of book values and earnings per share is affected by the decision to impair and it seems, firms that record an impairment have higher value relevance of accounting data (Adj. R2 of 0.62) in relation to firms that do not record an impairment (Adj. R2 of 0.57). Therefore, the results are in favor of research hypothesis H2 that the fast incorporation of new information in accounting data using impairment increases their value relevance.

Moreover, the model of equation (1) is also estimated using fixed or random effects to account for heterogeneity. The choice between fixed or random effects is done based on the Hausman test for fixed versus random effects that examines the null hypothesis (H0) that the random effects are correlated with the error term and a Redundant Fixed effects test that examines the null hypothesis (H0) that all fixed effects are jointly significant. Both of the tests are significant at the 1% significance level which indicates that the random effects estimator should be used. The results of the estimation using random effects are shown in Panel B of Table 2. As it can be seen, the results are in agreement with the results without using random effects.

However, a second result is that the statistical significance of the slope coefficient of book values per share is reduced for the portfolio of firms that record and impairment. Moreover, using random effects leads to statistical insignificance of the slope coefficient of book value per share. On the other hand, the slope coefficient of earnings per share is significant under all research settings. This result shows that investors seem to recognize that the recording of goodwill impairments reduces the future prospects of a firm and therefore pose less importance on the book value of the firm. On the other hand, this may cause investors to place more importance (a larger weight) to earnings than book values of equity.

To investigate this possibility we also estimate the models of equations (2) and (3) and the results are tabulated in Panels A (book value per share) and B (earnings per share) of Table 3. The results show that the portfolio of firms that record goodwill impairments has lower value relevance of book values of equity per share in relation with the results for the portfolio of firms that do not record goodwill impairments. On the contrary, the results for earnings per share show that their value relevance is increased when we move from the portfolio of firms that do not record goodwill impairments to the portfolio of firms that record goodwill impairments. The results in total, show that recording of goodwill impairments lead to lower value relevance of book values of equity which in turn causes investors to put more weight on earnings per share. In total, the recognition of goodwill impairments is related with reduced future prospects of the firm and this seems to be recognized by investors.



**Table 2**  
**Results of the Book Value only and EPS only Models**

<i>Panel A: Book Value only model</i>					
$Pr i_{i,t} = \alpha_0 + \alpha_1 BVPS_{i,t} + \varepsilon_{i,t}$					
<i>Portfolio</i>	$\alpha_0$	<i>t-stat</i>	$\alpha_1$	<i>t-stat</i>	<i>Adj. R2</i>
All	0.71*	2.98	1.17*	15.62	0.28
No_imp	0.66*	2.83	1.15*	15.44	0.28
Imp	1.78	1.20	1.52*	3.41	0.24

  

<i>Panel B: EPS only model</i>					
$Pr i_{i,t} = \alpha_0 + \alpha_1 EPS_{i,t} + \varepsilon_{i,t}$					
<i>Portfolio</i>	$\alpha_0$	<i>t-stat</i>	$\alpha_1$	<i>t-stat</i>	<i>Adj. R2</i>
All	1.90	14.11	6.61*	27.30	0.54
No_imp	1.88	14.10	6.40*	26.25	0.53
Imp	2.42	2.83	8.56*	7.09	0.60

*Notes:* The final sample consists of 199 firms with 637 observations for the period 2005-2008. \*, \*\* and \*\*\* indicates significance at the 1%, 5% and 10% significance level respectively. The variables definitions are as follows: *Pri*: is the stock price of firm *i* measured three months after fiscal year end, *EPS*: is the earnings per share of firm *i* at year *t* and *BVPS*: is the book value per share of firm *i* at year *t*.

## 5. Conclusions

The present paper examines the information content of goodwill impairments for stock prices. Moreover, it examines if the recording of goodwill impairments affects the value relevance of accounting data. The study uses an unbalanced panel of Greek Firms, listed in the Athens Stock Exchange for the period 2005-2008, as an input to the Ohlson (1995) model. The methodological approach consists of panel regressions that also allow some degree of heterogeneity between the firms of the panel using a fixed or random effects estimator.

The results show that goodwill impairments have some information content for stock prices which however, is negatively associated with stock prices. In specific, it is shown that recording of goodwill impairments lead to lower value relevance of book values of equity which in turn causes investors to put more weight on earnings per

share. In total, the recognition of goodwill impairments is related with reduced future prospects of the firm and this seems to be recognized by investors. However, the combined value relevance of book values and earnings seems to be higher for the portfolio of firms that record goodwill impairments. This result may be caused by the fast incorporation of the new information in the financial statements through the impairments mechanism.

The present study offers implications for future research. In specific it would be fruitful to investigate the characteristics of firms that record goodwill impairments and the extend to which these are related to factors like leverage.

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