Evidence of European IFRS Adoption:
The effect on goodwill and intangible assets[1]

Mattias Hamberg
School of Business, Economics, and Law,
Göteborg University, Box 610, 405 30 Göteborg,
Sweden
mattias.hamberg@handels.gu.se

Jiri Novak
Department of Business Studies
Uppsala University
Box 513, 751 20 Uppsala
Sweden
jiri.novak@fek.uu.se

Mari Paananen[2]
Business School
University of Hertfordshire,
College Lane, Hatfield, AL10 9AB
United Kingdom
m.paananen@herts.ac.uk

(Do not quote without permission)

UHBS 2006:4

---

[1] Please note that the authors are alphabetically listed to recognize the equal effort put into this paper by the co-authors.
[2] Corresponding author

Abstract

We investigate how the adoption of IFRS 3, business combinations, affected reported goodwill and whether the change was relevant for stock market valuation of companies. We use data for all companies listed at the main Swedish stock exchanges.

We find some evidence suggesting that aggregated goodwill impairment charges in 2005 are lower than aggregated goodwill amortizations in 2004. Hence, goodwill seems to be more persistent than implied in the amortization plans used prior IFRS. In addition, our results indicate that the information on higher goodwill persistence had not been impounded in stock prices prior to the IFRS 3 adoption. We document some evidence of positive returns earned on a zero-investment trading strategy that buys stock of goodwill- and intangible-asset-intensive companies whose expected earnings are favorably affected by higher persistence of goodwill and short-sell stocks with low goodwill and intangible asset. These results may indicate that the increased relevance of the reported goodwill measure after the adoption of IFRS 3 was relevant for stock market valuation of companies. However, the change across portfolios was not statistically significant.

1. Introduction

It may be argued the adoption of International Financial Reporting Standards (IFRS) by European listed companies in 2005 constitutes one the most fundamental reforms in accounting practices ever made within the European context. The aim of the adoption of the IFRS is to develop a single set of accounting standards that should streamline accounting practice around the world and hence improve comparability of financial reporting (IASB). The improved comparability should make it easier for investors to interpret financial reports across countries, decrease information asymmetry and consequently reduce cost of capital.

Besides improving comparability of financial reports, the International Accounting Standards Board (IASB) stresses the importance of faithful representation and fair value accounting is one of the most important issues (Wittington 2005; Schipper 2005). However, if there is no market the fair value must be estimated based on a variety of different economic models. This introduces discretion in assessing fair value, which may provide an opportunity for opportunistic behavior. This, in turn, requires that investors are able to discern and distinguish between changes in accounting practices and changes in fundamentals affecting companies' cash flows.

The adoption of IFRS 3, *Business Combinations*, resulted in a dramatic change in how to account for goodwill in Sweden. Under Swedish GAAP, goodwill is amortized over the useful economic life of the asset. However, when adopting IFRS in 2005, amortization of goodwill is no longer allowed and the amortization is replaced by a (at least) yearly impairment test of the fair value. The rationale for the "impairment-only"

approach is the concern that reported goodwill and intangible assets do not represent the underlying economic reality (FASB).

In this study, we investigate how the adoption in 2005 of IFRS 3 impacted on goodwill and goodwill charges reported by listed Swedish companies and the capital market implications of the adoption of IFRS, by examining investor anticipation of the impact of the switch to IFRS on reported earnings by conducting a zero-investment trading strategy. First, we examine the effects of IFRS 3 adoption on reporting of acquired goodwill. Based on previous research, we expect that the economic value of goodwill, in general, is more persistent than implied in the amortization plans (Hayn and Hughes 2005). Thus, we predict that aggregated goodwill impairment charges in 2005 are lower than aggregated goodwill amortizations in 2004.

Second, we examine whether the higher goodwill persistence was already incorporated in stock prices or whether the goodwill reported under IFRS 3 constituted new value-relevant information. In particular, although the likelihood of higher goodwill persistence than implied in the amortization plans has been generally acknowledged, we expect that investors did not incorporate it in their valuations of company stocks. This may be because investors excessively focus on earnings as a bottom-line salient accounting number (Fiske and Taylor 1991; Libby et al. 2002) and fail to properly account for the different persistence of its components. Hence, we expect the investors to react on the goodwill reported under IFRS 3 as new value-relevant information.

To test this prediction we set up a zero-investment trading strategy that tests whether the companies whose valuation is affected by the higher persistence (because goodwill cost represents a high fraction of their revenues) earn positive abnormal returns.

4

Since goodwill is likely to be more persistent then implied in the amortization plans, we expect the goodwill impairment charges reported under IFRS 3 to be lower than goodwill amortizations reported under prior Swedish GAAP. The higher fraction of revenues the goodwill amortizations constitute the more the company earnings will be affected by the transition to IFRS 3. If the higher persistence of goodwill is treated as new information by the stock market, companies that benefit most from avoiding amortization costs should earn positive short-term abnormal returns. Consequently, our fictitious zero-investment trading strategy buys stocks with high fraction of goodwill amortization costs to sales (whose earnings are expected to favourably affected by the adoption of IFRS 3) and short sells stocks with low fraction of goodwill amortization costs to sales.

The end of the accounting period ending in 2005 was the first time companies impair goodwill according to IFRS. However, in 2004 companies produce two sets of financial reports – one according to Swedish GAAP and the other according to IFRS for comparison purposes. Hence, we assume that the information on higher goodwill persistence was disclosed in the 2004 annual reports. Thus we base our trading strategy on the last accounting information prior to the first reports being prepared according to IFRS, i.e. the third quarterly report (Q3) in 2004. We allow for 2 months for the dissemination of Q3 information and begin our trading strategy at the end of November 2004[3]. It usually takes longer for the annual report information to reach investors; hence we follow a standard procedure (e.g. Fama and French, 1992) and allow for 6 months for the accounting information dissemination. We hold our portfolio till June 2005 (i.e. in total we hold the portfolio for 7 months).

---

[3] Note that we consider only companies with accounting period ending in December; hence we know that for these companies the third quarter ended in September 2004.

We find that the financial reports prepared according to IFRS 3 indeed indicate that the economic value goodwill is more persistent than is implied by the use of amortization plans. We also find some evidence the higher persistence of goodwill was not impounded in stock prices before the first reports under IFRS were prepared and that it was treated as a new value-relevant piece of information. We also conduct a number of sensitivity tests in order to establish that alternative explanations are not affecting our results. In doing so, we conclude that there is no indication of "big bath" behaviour in 2004, before the adoption of IFRS 3, we also find no reason to suspect that the use of intangible assets as opposed to goodwill amortizations has confounded the results. Moreover, we did not find anything suggesting that the inclusion of companies not listed on the Stockholm Stock Exchange (and thereby potentially not reporting under IFRS) did qualitatively change our results. Finally, by comparing our results with a previous period with increasing profitability and rising stock prices, we conclude that the buoyant stock market in 2005 did not affect our results.

The remainder of the paper is organized as follows; Section 2 describes previous research regarding goodwill and goodwill reporting standards. In Section 3 we develop our hypotheses. Section 4 discusses the methodology we use and Section 5 describes the sample. In Section 6 we discuss our results; Section 7 comprises a sensitivity analysis and finally Section 8 concludes.

2. Previous Research

Goodwill is a measure of the amount paid in excess of the fair value of an acquired enterprise's net assets. This excess amount can be interpreted in a number of different ways. Goodwill can either be viewed as the fair value of unrecognized acquired

assets, the fair value of the going concern component of the acquirer's existing business, or the fair value of future synergies arising from the combination (Johnson and Petrone 1997). All of the above cases indicate a future benefit attached to the goodwill amount, which justifies its recognition as an asset (Churyk 2005; Johnson and Petrone 1997). Both IASB and the FASB maintain that goodwill meets the definition of an asset, and thus, should be capitalized as such (IASB; FASB). Recognizing goodwill as an asset leads to the issue of the subsequent treatment to expensing the goodwill item.

Historically, both IASB and FASB used to prescribe regular amortization of goodwill. This accounting practice was abandoned in favor of the "impairment-only" approach by FASB in 2001 by the implementation of SFAS 142 (and SFAS 141). The same method for re-assessment of the goodwill value is required by IFRS 3, which became mandatory for listed European companies in 2005. The adoption of the impairment-only approach was motivated by the concern that reported goodwill and intangible assets do not adequately represent the underlying economic reality (FASB). Previous research suggests that goodwill amortizations do not add value to the earnings measure; on the contrary, goodwill amortizations add noise and make it harder for investors to use the earnings measure to predict future profitability (Jennings et al. 2001). Consequently, considering the increasing economic importance of goodwill and intangible assets over time, a change in the way it is reported was considered necessary.

Due to the short period since IFRS 3 went into effect, the "lion's share" of the research on the effects of the impairment-only approach is based on the consequences of SFAS 142 implementation. A number of studies on the effects of SFAS 142 (in effect in the U.S. as of 2002) suggest that the "impairment-only" approach indeed has improved

the quality of reported information on goodwill and intangible assets (Hayn and Hughes 2005; Chen et al. 2004; Churyk 2004; Li et al. 2004).

Hayn and Hughes (2005) investigate whether investors are able to assess the value of goodwill based on available financial reporting before and after the adoption of SFAS 142. They use a sample of U.S. companies that made acquisitions between 1988 and 1998. Hayn and Hughes (2005) track these companies' goodwill disclosures through 2004 and find that the implementation of SFAS 142 has improved investors' ability to predict goodwill write-offs considerably. However, their results also suggest there is a time lag between when the impairment occurred and actual recognition of the impairment losses, and consequently, there is a lag between investors' ability to predict impairment and the timing of the economic deterioration of the goodwill asset.

Chen et al. (2004) examine the effects on timeliness by decomposing impairment charges among U.S. companies into adoption impairments and subsequent impairments and to test the timeliness of these charges. If the goodwill accounting under amortization plans provides the market with sufficient information, then the adoption impairment charges are already impounded into stock prices and are basically a catch-up adjustment, while subsequent impairment charges are predicted to provide the market with new and relevant information. They find that the adoption impairment charges are partially providing the market with new information. Moreover, they also find an increased value relevance of accounting information associated with the adoption of SFAS 142 (Chen et al. 2004). Similarly, Churyk (2005) test the value relevance of goodwill impairment charges made subsequent to the adoption of SFAS 142 and find a strong increase in value relevance of reported goodwill.

Li et al. (2004) assessed the market response to reported impairment charges by measuring the association between analysts' forecast revisions around the announcements of impairments charges. They find that the SFAS 142 improved the reported information on goodwill and intangible assets to investors. In particular, Li et al. (2004) found that announcements of goodwill impairments provide investors with useful information about the firm's future prospects.

In sum, previous research regarding the SFAS 142 implementation suggests that amortization plans do not adequately capture the economic value of goodwill assets and that the switch over to the on the impairment-only approach improves the quality of accounting numbers.

3. Hypothesis Development

In order to examine how the new standard on reporting goodwill IFRS 3 affected companies' earnings we first want to investigate whether the value of acquired goodwill is more persistent than implied by the amortization plans. In case the fair value of acquired goodwill decreases faster than implied by the amortization plan used prior to the IFRS 3 adoption, appropriate write-offs should be carried out under both accounting regimes. Hence, when the persistence of goodwill is lower than implied in the amortization plans, there is no difference in expense recognition between the Swedish GAAP and IFRS 3. However, if the fair value of acquired goodwill decreases at a slower rate than implied by the amortization plan, then the cost recognition under IFRS 3 is slower compared to Swedish GAAP. Hence, in case of high persistence of goodwill, the adoption of IFRS 3 involves slower expense recognition, and therefore, has a positive

temporary effect on reported earnings. This effect will be strongest for the acquired-goodwill-intensive companies (i.e. those with high goodwill cost relative to revenues)[4].

We predict that the acquired goodwill is more persistent then implied by the amortization plans, and that this is manifested by lower goodwill amortization expense and higher profitability reported under IFRS 3 compared to Swedish GAAP. Ideally, we would like to compare the goodwill expense and earnings reported under the two regimes in 2004. However, data for such comparison is not available; therefore, we measure the change in profitability as the difference between total amortizations made in the year (2004) before the adoption of IFRS 3 and the impairments charges made in the year (2005) after the adoption of IFRS 3. Based on the above, we pose the following hypothesis:

Hypothesis 1:

The total impairment charges of goodwill made by Swedish firms in the year after the adoption of IFRS 3 are smaller than the total goodwill amortizations made in the year before the adoption of IFRS 3.

The second part of our study addresses the question whether the economic persistence of acquired goodwill was already reflected in stock prices or whether the goodwill persistence implied in the impairment charges reported under IFRS 3 was

---

[4] It should be noted that the positive effect of IRFS 3 adoption on revenues can be magnified if management are overoptimistic or if they have incentives to manage earnings. When the management are overoptimistic about the company's performance they tend to overestimate the future economic benefits of goodwill, which involves less need to impair it. It is also conceivable that management may use reported goodwill to boost profits. Some research suggests that IFRS 3 introduces a covenants tend to manipulate the classification of the goodwill charges in the income statement and the timing of the charge (Beatty and Weber 2006). Hence, managers may be more likely to postpone goodwill cost recognition after the IFRS 3 adoption than before it.

treated as new value-relevant information. Previous research in experimental psychology suggests that due to cognitive limitations investors do not appropriately consider all available information. Instead, they concentrate on a number of salient stimuli (Fiske and Taylor 1991; Libby et al. 2002). In the field of finance, Hirshleifer and Teoh (2003) have developed a model where more salient information that requires less cognitive processing is more extensively used by investors, and hence it tends to be reflected, to a greater degree, in stock prices. The most salient pieces of reported accounting information are the summary measures, i.e. net income and book value of shareholders' equity. An example of an empirical finding that can be attributed to this behaviour is provided by Sloan (1996) who reported that investors underestimate the persistence of cash flows and overestimate the persistence of accruals, which makes it possible to earn a positive abnormal return by investing in stock with a high cash flow component in their earnings (and short-sell stocks in companies whose earnings contain a lot of accruals instead of cash flows). He attributes this finding to investors' naïve fixation to earnings figure and failing to properly account for different characteristics of their components.

Following this line of argumentation, we hypothesize that investors did not acknowledge the importance of higher persistence of acquired goodwill on expected earnings. We expect that investors focus their attention on the most salient accounting figures (i.e. earnings) and are unable to fully account for the importance of the overstatement of goodwill expense due to the higher persistence of the value of acquired goodwill. Therefore, we expect investors to treat the information on the goodwill persistence implied in the impairment charges reported under IFRS 3 as news and to adjust their valuation accordingly. This adjustment is expected to lead to an increase in

stock price that should be largest for acquired-goodwill-intensive companies (i.e. those with high goodwill cost relative to revenues). This reasoning leads up to hypothesis 2:

Hypothesis 2:

Companies with proportionally high levels of goodwill amortization costs before the IFRS 3 adoption will, on average, experience a higher stock returns after the IFRS 3 adoption compared to companies with low levels of goodwill amortization costs.

4. Methodology

To test hypothesis 1, we use impairment write-downs in relation to sales made up to the third quarter of 2005 and compare these with goodwill amortizations scaled by sales up to the third quarter of 2004. The comparisons are evaluated using the regular t-test of means and the Wilcoxon-Mann-Whitley test of medians.

To test Hypothesis 2, we assess the outcome of a fictitious trading strategy that buys stocks whose underlying earnings were positively affected and short-sells stock of companies with negatively affected earnings. The trading strategy methodology is used to assess how efficiently market processes available information to form anticipation about the future. Systematic deviations in expectation formation may be traced by trading strategies. One of the primary benefits of this approach is that it requires only information that is available to investors at a certain point in time; hence, it is relatively easily replicable by real investors (with the exception of limitations on short selling).

Lakonishok et al. (1994) performed a trading strategy to show that stock with very high (low) stock price in relation to accounting fundamentals, i.e. glamour (value) stocks,

undergo a subsequent correction. The systematic correction is exploited for forming the trading strategy. Frankel and Lee (1998) extend this framework by using analyst forecasts to evaluate companies' fundamental value. A trading strategy based on the ratio of the fundamental value to price (VIP ratio) is used to show that there are systematic biases in analysts' forecasts than can be exploited by trading on the stock market. Sloan (1996) also uses a trading strategy which suggests that investors fail to fully acknowledge the higher persistence of cash flows compared to accruals when forming expectations on future earnings. Buying stocks with a proportionally high cash flow component of earnings and short selling stock with earnings with a proportionally high accrual component earns a positive excess return. Finally, Hirshleifer, et al. (2004) extend this approach by focusing on cumulative accounting income and cumulative cash flows. They use a trading strategy based on the ratio of net operating assets to total assets to exploit investor bias in assessing the different significance of the cumulative accounting income and the cumulative cash flows on future earnings.

We use a similar trading strategy approach to assess whether investors correctly anticipated the higher persistence of goodwill then implied in the amortization plans. If investors excessively fixate on earnings as the aggregate profitability measure as suggested by Sloan (1996) and Hirshleifer et al. (2004), there should be a market reaction to the change in earnings due to the IFRS 3 adoption. To assess this proposition, we test whether a trading strategy that buys stocks for which underlying earnings were positively affected and short-sells stock of companies with negatively affected earnings, earns a positive excess return.

We use two measures for sorting the stocks into portfolios. The first is the ratio of goodwill amortization to sales reported in the third quarter report of 2004. We predict that the higher the goodwill to sales ratio prior to the IFRS 3 adoption, the more positive impact on earnings when switching to IFRS, which in turn, is expected to result in a positive stock market reaction.

Second, to complement the goodwill amortization measure, we use reported intangible assets relative to total assets reported in the third quarter report of 2004 as a proxy for goodwill intensive companies. Again, we predict that the higher the proportion of intangible assets, the more positive impact on earnings resulting in unexpected earnings from investors' point of view.

We sort companies based on each of the two ratios and calculate portfolio returns for the 7-month long period starting at the end of November 2004 and ending at the end of June 2005. We use accounting information published in third quarterly report in 2004 to sort the companies into portfolios, assuming that this information was publicly available for all companies in November 2004, i.e. two months after the end of the third quarter[5]. The first time Swedish investors had any access to financial reports under the IFRS 3 standard was in December 2004 when all companies had to provide a reconciliation between their financial statements under Swedish GAAP to those under IFRS. However, we do not expect the hypothesized price reaction to be immediate and hence we hold our portfolios until June 2005.

---

[5] Note that we consider only companies with accounting period ending in December, hence we know that for these companies the third quarter ended in September 2004.

We only use observations with information on stock prices available for the formation time at the end of November 2004.[6]

To form our portfolios based on each of the two measures we first divide companies into two subsets: a) companies reporting a positive value of goodwill or intangible assets and b) the remainder of the sample that do not amortize a positive value of goodwill or intangible assets. We then partition the groups of companies into a set of quantile portfolios for each of the two measures. We predict that the return increases monotonously from the sub-group with the lowest goodwill amortization in relation to sales to the sub-group with the highest. Similarly, we predict a monotonous increase from the sub-group with the lowest proportion of intangible assets to the sub-group with the highest.

To make sure that our results from the trading strategies are not driven by outliers with exceptional stock returns, we winsorize stock returns at 5% from each side.[7] The raw stock returns over the 7-month holding period range between -68.06% and 423.44%. After winsorizing at the 5% level stock returns vary between -30.74% and 123.00%.

We assess the increase of the return in the two sets of portfolios using the Jonckheere test for ordered alternatives to test whether the medians in the portfolios are ordered in magnitude (Siegel and Castellan 1988). This test is designed for situations where a priori directional prediction is made. The test involves comparing the medians between each portfolio using the Mann-Whitley count:

---

[6] However, in order to avoid survivorship bias, stocks delisted during the 7-month holding period are kept in the sample and these companies' returns are replaced with market returns for the rest of the holding period.

[7] The highest 5% of the stock returns is replaced with stock return of the 95th percentile observation and lowest 5% of stock returns are replaced with the stock return on the 5th percentile observation.

$$U_{ij} = \sum_{h=1}^{ni} \#\left(X_{hi}, j\right) \qquad (1)$$

Where $\#\left(X_{hi}, j\right)$ represents the number of times the value $\left(X_{hi}, j\right)$ is smaller than the value in portfolio j, where $i < j$. The Jonckheere test statistic J is the total number of these counts (Siegel and Castellan 1988)..

$$J = \sum_{i<j}^{k} U_{ij} = \sum_{i=1}^{k-1} \sum_{j=i+1}^{k} U_{ij} \qquad (2)$$

In cases of a sample greater than seven in each portfolio normal distribution can be assumed with a mean equal to:

$$\mu_J = \frac{N^2 - \sum_{j=1}^{k} n_j^2}{4} \qquad (3)$$

And variance:

$$\sigma_J^2 = \frac{1}{72}\left[N^2(2N+3) - \sum_{j=1}^{k} n_j^2(2n_j+3) \right] \qquad (4)$$

With the test statistic:

$$J^* = \frac{J - \mu_J}{\sigma_J}$$

5. The Sample

Our sample consists of data from all companies listed in November 2004 at the four major Swedish stock exchanges. Most of data was extracted from the Six Trust database. However, the data on goodwill amortizations from 2004 and goodwill impairment write-downs have been collected from the third quarterly reports. The initial

sample consists of all firms listed at the end of the third quarters in 2004. In total there are 373 firms. Out of those, we exclude 14 since they are reporting in foreign currencies.[8] For the sake of our trading strategy, it is crucial that all information is available at the time of portfolio formation. Firms with non-calendar fiscal years publish their quarterly and annual reports at different points in time than the majority of firms, and therefore, they are not included in the portfolios. We exclude 11 firms with non-calendar fiscal years. In addition, we exclude 45 firms belong to financially oriented industries (banks, insurance, and investment firms) because of the unusual structure of their financial reporting and because this type of firms also are regulated by another set of industry-related set of reporting standards. Finally, we also exclude 15 firm for which stock price at the end of November 2004 is not available and hence, their returns over the 7-month long holding period cannot be calculated[9]. The resulting sample consists of 288 companies. All amounts collected are in millions of Swedish Kronor (MSEK) or millions of shares. Table 1 briefly outlines the sample selection process.

<Table 1 about here>

In addition, we conduct a number of sensitivity tests to rule out alternative explanations. When doing so, we corroborate our findings with data extracted from a different database, Standard and Poor's Compustat. Table 2 briefly outlines the sample selection process for this part of the study.

---

[8] Six Trust does not recalculate any values reported in other currencies than SEK. In addition, these firms are most likely cross-listed and may, therefore, be assumed not to be representative for Swedish companies.
[9] In case a stock is delisted during the 7 months holding period it remains in the sample and its returns are replaced with market returns for the rest of the duration of the holding period. This treatment is used to make sure to avoid survivorship bias.

\<Table 2 about here\>

6. Empirical Results

We test the first hypothesis by partition the data into one subset containing firm-year observations for which the intangible assets are substantial, defined as intangible assets equal to or exceeding 25% of total assets. As shown in Table 3, we found that the total impairment write-offs made up to the third quarter of 2005 are significantly smaller than the total amortizations of goodwill made up to the third quarter of 2004. However, only the medians are significant when testing the same variables scaled by sales. Thus, hypothesis 1 is only marginally supported.

\<Table 3 about here\>

The use of goodwill to sales measure is limited by data availability. We collected data from all third quarter reports and found goodwill amortizations for only 64 out of total of 288 companies in the final sample population. The limited number of observations may either be the result of that only a few companies actually have any goodwill to amortize or that companies are not reporting the goodwill amortizations separately in the quarterly reports. The results concerning the return on individual portfolios together with the number of observations in each of them are reported in Table 4. The reported returns are raw returns over 7 months between November 2004 and June 2005.

As shown in Panel A, Table 4, there seems to be a steady increase in returns across the portfolios formed based on the ratio of goodwill cost to sales at the end of 3rd quarter 2004. The 7-month returns increase monotonically from 17.74% for the portfolio of companies with the lowest goodwill amortizations to 30.31% for the portfolio with the highest acquired-goodwill-intensity. However, the monotonous increase in returns between the groups is not statistically significant (J^* equal to 0.593).

Panel B, Table 4 shows a similar analysis using relative intangible assets to partition between the portfolios. Once again, we find that there is a steady increase in returns from 19.78% for the portfolio containing companies with the lowest amount of intangible assets to total assets to 32.98% for the portfolio with the highest proportion of intangible assets in total assets. However, neither is this increase in returns across the groups statistically significant (J^* equal to 0.593).

<Table 4 about here>

In sum, our results indicate that goodwill is indeed more persistent than implied in the amortization plans, which is reflected in the lower goodwill impairment in the third quarter 2005 than goodwill amortization in the third quarter 2004. There is also an indication that investors do not fully anticipate the higher persistence of goodwill and hence their treat the IFRS reported goodwill as a new value-relevant information. Firms with higher level of goodwill charges to sales and also firms with high intangible assets to total assets earn a positive excess return between November 2004 and June 2005.

However, further tests show that the pattern of the market reaction across portfolios is not statistically significant.

7. Sensitivity Analysis

We have conducted a number of robustness tests in order to rule out alternative explanations to our findings. First, we test the possibility that the monotonous increase in returns across portfolios may be driven by systematic revaluation of goodwill and intangible assets in the first half of 2005 rather than by the market reaction on the new way of reporting goodwill. Value of goodwill is related to the growth opportunities companies have. It is conceivable that in the first half of 2005 favourable market conditions lead to a systematic increase in expected growth opportunities across the whole market. This positive change would mostly affect the valuation of goodwill and intangible assets intensive companies. Hence the higher returns on portfolios comprising companies with a lot of goodwill costs and intangible assets may have resulted from such revaluation. Such an explanation, however, seems less likely. In case goodwill and intangible assets were systematically revalued in the first half of 2005 we would expect that the companies with positive goodwill and positive intangible assets to have substantially higher stock returns than companies with no goodwill or no intangible assets respectively. Table 4 shows that companies with no reported goodwill changes earn actually slightly higher return than companies with goodwill charges (25.42% compared to 22.80%). Return on stocks with positive intangible assets is somewhat higher that the return earned by companies with no intangible assets (25.00% compared to 24.29%), but the difference is very small in comparison to the observed differences in returns for the individual portfolios.

The remainder of the robustness tests is carried out using an alternative source of data, Standard and Poor's Compustat Global. As described in Table 2, we exclude all companies not listed on the Stockholm Stock Exchange and do not report positive goodwill at the year end of 2004. The reason for excluding companies from other Swedish stock markets is that these other markets do not explicitly require companies to report under IFRS, and therefore, there may be companies reporting under Swedish GAAP included in the original sample. We exclude companies with no positive goodwill since the focus of the study is on the effects of the change in goodwill accounting. [10]

First, we examine the pattern of impairment write-offs and amortizations for the whole year of 2004 and 2005 in order to control for "big bath" behaviour driving the results found in the test of hypothesis 1. As shown in Table 5, we find that total impairments and amortizations are larger in 2004 compared to 2005 and the difference is statistically significant. This could be an indication that companies have engaged in a "big bath" behavior before adopting IFRS. However, we also manually collected data on total impairment charges for the two years 2004 and 2005. We found no indication of large write-offs in 2004. All in all, the additional tests confirm previous results and support hypothesis 1.

<Table 5 about here>

We also rerun our test of investor strategies using Standard and Poor's Compustat data. As previously stated, by using this dataset we ensure that all firm-year observations

---

[10] As in previous tests, we have winsorized the data on the 5% percent level to avoid outliers driving the results.

collected for the year 2005 are indeed reporting under IFRS. In addition, by using this

dataset, we are also able to extract all companies reporting positive goodwill. The

drawback with this sample is that we are not able to extract this information on goodwill

for the third quarter of 2004 (as in our main analysis). Instead, in this robustness test, we

use the goodwill balance at the year end of 2004. Moreover, we use the return adjusted

for net dividend (based on pay date) for the 15-month period from January 1st 2005 up to

March 31, 2006. As shown in Table 7 below, we once again find a pattern of increasing

means as the proportional goodwill balance increases among the portfolios. However,

assessing the difference using the Jonckheere test for ordered alternatives we find that the

monotonous increase is not statistically significant. In addition, in this two-tailed t-test of

the difference between the mean of the portfolio with the lowest proportion of goodwill

to total assets and the portfolio with the highest proportion of goodwill to total assets is

no longer statistically significant (p-value 0.328). Based on the above, we conclude that

our results are inconclusive; however, the main test results are not likely to be driven by

the fact that companies that potentially are not reporting under IFRS may be included.

Finally, the dividends do not seem to affect the results in any direction.

<Table 7 about here>

We also conduct a similar test using data from another period with increasing

stock prices and profitability. This test aims at controlling that our results are not driven

by a systematic increase in value of intangible asset. As in previous test we use Standard

and Poor's Compustat and extract all firm-year observations and create portfolios based

22

on the proportion of goodwill to total assets held at the year end of 1998. We use the

return adjusted for net dividend (based on pay date) for the 15-month period from

January 1st 1999 up to March 31, 2000. As reported in Table 8, this test reveals no pattern

of increasing means as the proportional goodwill balance increases among the portfolios.

Neither the Jonckheere test for ordered alternatives, nor the t-tests of the means are

statistically significant.

<Table 8 about here>

8. Conclusion

We investigate how the adoption of IFRS 3 in 2005 impacted on goodwill and

goodwill charges reported by listed Swedish companies and to what extent investor

anticipated the impact of the higher persistence of earnings on reported earnings. First,

our results confirmed that the economic value goodwill is more persistent than implied by

the use of amortization plans. Second, we found some indications of that investors did not

fully acknowledge the higher persistence of goodwill and therefore the new reporting

regime under IFRS 3 lead to a market reaction that could have been exploited with a

trading strategy. However, the difference between returns across portfolios was not

statistically significant, and therefore, our findings are not conclusive.

We also conduct a number of sensitivity tests in order to establish that our results

are not driven by some other explanatory factors. First, we point out that companies with

positive goodwill and intangible assets do not earn substantially higher return than

companies with no reported goodwill or intangible assets, which means that the results

are not likely to be driven by systematic re-valuation of goodwill and intangible assets in

the first half of 2005. In addition, we conclude that there is no indication of "big bath"

behaviour in 2004, before the adoption of IFRS 3, we also find no reason to suspect that

the use of intangible assets as opposed to goodwill only has confounded the results.

Moreover, we did not find anything suggesting that the inclusion of companies not listed

on the Stockholm Stock Exchange (and thereby potentially not reporting under IFRS)

affected the results. Finally, by comparing our results with a previous period with

increasing profitability and rising stock prices, we conclude that the booming market in

2005 did not drive our results.

Overall, our study suggests that the value of goodwill seems to be more persistent

then implied in the amortization plans used under the Swedish GAAP. In addition, it also

provides some evidence that reporting goodwill according to IFRS 3 provided investors

with new information on goodwill persistence that had not been previously impounded in

stock prices. Despite of the lack of statistical significance to support this conclusion it

seems that the adoption of IFRS 3 increased the relevance of the reported goodwill

measure.

References

Abarbanell, J. S. and B. J. Bushee (1998), 'Abnormal Returns to a Fundamental Analysis Strategy', *Accounting Review*, Vol. 73, No. 1, pp. 19-45.

Alford, A., J. Jones, R. Leftwich, and M. Zmijewski. 1993. "The Relative Informativeness of Accounting Disclosures in Different Countries". *Journal of Accounting Research* 31:183-223 (Supplement).

Ali, A., and L. Hwang. 2000. "Country-Specific Factors Related to Financial Reporting and the Value Relevance of Accounting Data". *Journal of Accounting Research* 38:1-21.

Ball, R., S. Kothari, and A. Robin. 2000. "The Effect of International Institutional Factors on Properties of Accounting Earnings." *Journal of Accounting and Economics* 29:1-51.

Ball, R., A. Robin, and J.S. Wu. 2003. "Incentives Versus Standards: Properties of Accounting Income in Four East Asian Countries." *Journal of Accounting and Economics* 36:235-270.

Betton, S. and B.E. Eckbo, 2000, "Toeholds, Bid-Jumps, and Expected Payoffs in Takeovers," *Review of Financial Studies* 13, 841-882.

Chen, C., M. Kohlbeck, and T. Warfield. 2004. "Goodwill Valuation Effects of the Initial Adoption of SFAS 142". SSRN Working Paper Series.

Churyk. N.T. 2005. "Reporting Goodwill: Are the New Accounting Standards Consistent with Market Valuations?" *Journal of Business Research.* 58: 1353-1361

Fama, E. F. and K. R. French (1992), 'The Cross-Section of Expected Stock Returns', *Journal of Finance*, Vol. 47, No. 2, pp. 427-465.

FAR. 2005. *FARs Samlingsvolym 2005*. Stockholm: FAR Förlag.

FASB. 2001. Official Releases: FASB No. 142, SAS No. 94. *Journal of Accountancy* 192:115-147.

Fiske, S. T. and S. E. Taylor (1991). *Social Cognition* (McGraw-Hill, New York).

Flower, J. 1994. *The Regulation of Financial Reporting in the Nordic Countries*. Stockholm: CE Fritzes.

Frankel, R. and C.M.C. Lee. 1998. "Accounting Valuation, Market Expectation, and Cross-Sectional Stock Returns." *Journal of Accounting and Economics* 25:283-319.

Hayn, C. and P. Hughes. 2005. "Leading Indicators of Goodwill Impairment" SSRN Working Paper Series.

Hirshleifer, D. and S. H. Teoh (2003), "Limited Attention, Information Disclosure, and Financial Reporting." *Journal of Accounting & Economics*, Vol. 36, No. 1-3, pp. 337.

Hirshleifer, D., K. Hoo, S. H. Teoh, and Y. Zhang. 2004. "Do Investor Overvalue with Bloated Balance Sheets?" *Journal of Accounting and Economics* 38:297-331.

Hung, M. 2000. "Accounting Standards and Value Relevance of Financial Statements: An International Analysis". *Journal of Accounting and Economics* 30:401-420.

Hung, M., and K.R. Subramanyam. 2004. "Financial statement effects of adopting international accounting standards: the case of Germany". Working paper, University of California – Los Angeles.

IASB 2004. International Financial Reporting Standards.

Jennings, R., M.J. Leclaire, and R.B. Thompson. 2001. "Goodwill Amortization and the Usefulness of Earnings". *Financial Analysts Journal* 57: 20-29.

Johnson, L.T. and K.R. Petrone. 1997. Commentary to "Is Goodwill an Asset?" *Accounting Horizons.* 12:293-303.

La Porta, R., Lopez-de-Silanes, F., and Shleifer, A. (1999). "Corporate Ownership Around the World." *The Journal of Finance,* 54, 471-517.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R.W. (1997). "Legal Determinants of External Finance." *Journal of Finance,* 3, 1131-1150.

Li, Z, P. Shroff, and R. Venkataraman. 2004. "Goodwill Impairment Loss: Causes and Consequences. SSRN Working Paper Series.

Libby, R., R. Bloomfield and M. W. Nelson. 2002. 'Experimental Research in Financial Accounting', *Accounting, Organizations & Society*, Vol. 27, No. 8, pp. 775-810.

Schultze, W. 2005. "The Information Content of Goodwill-Impairments under FAS 142: Implications for External Analysis and Internal Control". *Schmalenbach Business Review* 57:276-297.

Sloan, R. G. (1996), 'Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings?' *Accounting Review*, Vol. 71, No. 3, pp. 289-315.

Table 1: Sample Selection Process of Data Extracted from Six Trust

	3rd Quarter 2004
Total number of observations	373
Firms reporting in foreign currencies	-14
Non-calendar fiscal year observations	-11
Finance and insurance observations	-45
Missing data on initial stock price (November 2004)	-15
Total sample	288

Table 2: Sample Selection Process Data Extracted from Compustat Using Perfect Analysis.

	Year 2004	Year 2005	Total no of observations
Total number of Swedish companies listed on the Stockholm Stock Exchange	359	359	718
Firms reporting with no positive goodwill at year-end 2004	-106	-106	-212
Non-calendar fiscal year observations	-13	-13	-26
Finance and insurance observations	-18	-18	-36
Excluded observations due to missing data	-76	-76	-152
Total sample	146	146	292

Table 3: Results of tests of hypothesis 1

Hypothesis 1		3rd Quarter		
Variables	N	Year	Mean	Median
Observations with substantial intangible assets				
Impairment write downs[2]	77	2005	0.456	0.000
Goodwill amortization[3]	61	2004	17.507***	0.000***
Impairment write downs[4]	77	2005	0.004	0.000
Goodwill amortization[5]	61	2004	0.004	0.000***
Observations with non- substantial intangible assets[1]				
Impairment write downs[2]	223	2005	0.618	0.000
Goodwill amortization[3]	223	2004	8.287***	0.000***
Impairment write downs[4]	223	2005	0.001	0.000
Goodwill amortization[5]	223	2004	0.001	0.000***
Observations with goodwill amortizations and impairment write downs only				
Impairment write downs[2]	14	2005	12.357	3.650
Goodwill amortization[3]	60	2004	43.405	6.000
Impairment write downs[4]	14	2005	0.032	0.002
Goodwill amortization[5]	60	2004	0.008**	0.006

[1] Observations with intangible assets to total assets *not* in the 75th percentile of the whole sample.

[2] Impairment write downs of intangible assets for firm "i" at time "t."

[3] Goodwill amortizations for firm "i" at time "t."

[4] Impairment write downs of intangible assets scaled by sales for firm "i" at time "t."

[5] Goodwill amortizations scaled by sales for firm "i" at time "t."

Asterisks indicates that the means (medians) of the years are significantly different using a one-tailed t-test (Mann-Whitney-Wilcoxon test): * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

Table 4: Returns on goodwill- and intangible asset- based contrarian investment strategies

Panel A – Analysis of the Ratio of goodwill amortization to sales		
	N	Raw return
Companies with no goodwill reported	224	25.42%
Companies with goodwill reported	64	22.80%

Portfolios ranked from low goodwill to sales to high goodwill to sales:

	N	Raw return
Portfolio 1	16	17.74%
Portfolio 2	16	19.77%
Portfolio 3	16	23.38%
Portfolio 4	16	30.31%
	64	

J^{*2} 0.593
p-value > 0.15

p-values of t-tests of the difference between portfolios (two-tailed):

1 and 2	0.831
2 and 3	0.754
3 and 4	0.599
1 and 4	0.275

Panel B – Analysis of Intangible assets to total assets		
Companies with no intangible assets reported	65	24.29%
Companies with intangible assets reported	223	25.00%

Portfolios ranked from low goodwill to sales to high goodwill to sales:

	N	Mean raw return
Portfolio 1	56	19.78%
Portfolio 2	56	22.70%
Portfolio 3	56	24.46%
Portfolio 4	56	32.98%
	224	

J^{*} 1.522
p-value > 0.15

P-values of t-test of differences between portfolios (two-tailed):

1 and 2	0.533	
2 and 3	0.242	
3 and 4	0.383	
1 and 4	0.024	**

1 The Jonckheere test statistic is calculated using the mean $\mu_J = \dfrac{N^2 - \sum_{j=1}^{k} n_j^2}{4}$ and the variance $\sigma_J^2 = \dfrac{1}{72}\left[N^2(2N+3) - \sum_{j=1}^{k} n_j^2(2n_j+3) \right]$. The test statistics is calculated as follows: $J^* = \dfrac{J - \mu_J}{\sigma_J}$.

Table 5: Test of impairments and amortization for companies reporting positive goodwill in the whole years of 2004 and 2005

	N	Year	Mean	Median
Impairments and amortizations (MSEK)	146	2004	88.726	12.057
Impairments and amortizations (MSEK)	146	2005	<u>39.035</u>	<u>10.510</u>
Difference			49.689***	1.548**
Impairments (MSEK)	127	2004	2.702	0.000
Impairments (MSEK)	128	2005	<u>4.646</u>	<u>0.000</u>
Difference			1.548	0.000
Impairments and amortizations scaled by sales	146	2004	0.020	0.012
Impairments and amortizations scaled by sales	146	2005	<u>0.022</u>	<u>0.009</u>
Difference			0.002**	0.003
Impairments scaled by sales	127	2004	0.004	0.000
Impairments scaled by sales	128	2005	<u>0.003</u>	<u>0.000</u>
Difference			0.001	0.000

Asterisks indicates that the means (medians) of the years are significantly different using a one-tailed t-test (Mann-Whitney-Wilcoxon test): * $p < 0.1$, ** $p < 0.05$, and *** $p < 0.01$.

Table 6: Returns on companies with positive goodwill based contrarian investment strategies using Compustat data

Analysis of the proportion of positive goodwill balance at the year end 2004

	N
Companies with no positive goodwill reported in 2004	106
Companies with positive goodwill reported in 2004	146

Portfolios ranked from low goodwill balance at the year end 2004 to high goodwill to sales:

	N	Mean return[1]
Portfolio 1	37	58.15%
Portfolio 2	36	60.18%
Portfolio 3	37	63.67%
Portfolio 4	36	75.76%
	146	

$J*$[2]   -2.352
p-value > 0.15

p-values of t-tests of the difference between portfolios (two-tailed):

1 and 2	0.882
2 and 3	0.838
3 and 4	0.556
1 and 4	0.328

[1] Return is the average 15 month return adjusted for dividends calculated from January 1, 2005 to March 31, 2006.

[2] The Jonckheere test statistic is calculated using the mean $\mu_J = \dfrac{N^2 - \sum_{j=1}^{k} n_j^2}{4}$ and the variance $\sigma_J^2 = \dfrac{1}{72}\left[N^2(2N+3) - \sum_{j=1}^{k} n_j^2(2n_j + 3)\right]$. The test statistics is calculated as follows: $J^* = \dfrac{J - \mu_J}{\sigma_J}$.

Table 7: Returns on companies with positive goodwill based contrarian investment strategies using Compustat data from the years 1999 and 2000

Analysis of the proportion of positive goodwill balance at the year end 1998

	N
Companies with no positive goodwill reported in 1998	284
Companies with positive goodwill reported in 1998	96

Portfolios ranked from low goodwill balance at the year end 1998 to high goodwill to sales:

	N	Mean return[1]
Portfolio 1	23	94.63%
Portfolio 2	24	70.35%
Portfolio 3	23	73.17%
Portfolio 4	<u>26</u>	95.79%
	96	

$J*$[2] -0.344

p-value > 0.15

p-values of t-tests of the difference between portfolios (two-tailed):

1 and 2	0.511
2 and 3	0.936
3 and 4	0.497
1 and 4	0.973

---

[1] Return is the average 15 month return adjusted for dividends calculated from January 1, 1999to March 31, 2000.

[2] The Jonckheere test statistic is calculated using the mean $\mu_J = \dfrac{N^2 - \sum_{j=1}^{k} n_j^2}{4}$ and the variance

$\sigma_J^2 = \dfrac{1}{72}\left[N^2(2N+3) - \sum_{j=1}^{k} n_j^2(2n_j+3) \right]$. The test statistics is calculated as follows: $J^* = \dfrac{J - \mu_J}{\sigma_J}$.