

# **Did the impairment-only approach improve goodwill's ability to predict future cash flows? A reexamination using Swedish data**

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## **Abstract**

This paper reexamines the ability of goodwill accounting to predict future cash flows under the impairment-only approach (IOA) during the periods of IFRS 3 and IFRS 3(R). Because the well-documented international misuse of the pooling option did not occur in Sweden, I utilize the previous amortization approach in the Swedish setting as a baseline. Using two different models focusing on either goodwill balances or write-offs, I find consistent with prior studies that the IOA improved goodwill's ability to predict future cash flows immediately after its adoption. However, I find no consistent evidence that goodwill balances or write-offs under the IOA are better able to predict future cash flows in latter periods. While no model favors the amortization approach, it is interesting that goodwill impairments based on managerial judgments under IFRS 3(R) do not provide more relevant information than systematic amortizations under Swedish GAAP. These findings should serve as important inputs as international standard setters consider new alternatives for goodwill accounting, including the reintroduction of the amortization approach.

**Keywords:** Goodwill, impairments, amortizations, IFRS 3, IAS 36, Swedish GAAP

## 1. Introduction

Although studies find that goodwill under the impairment-only approach (IOA) is able to predict future cash flows (Lee, 2011; Bostwick et al., 2016), other research shows that managers ostensibly inflate goodwill under the IOA to increase future earnings and compensation (e.g., Shalev et al., 2013; Detzen & Zülch, 2012). These seemingly contradictory findings are, however, based on relatively few sample-years, specific sub-samples, or unable to fully address issues with internal validity. Thus, the literature has not yet provided adequate evidence about the general and long-term effect of the introduction of the IOA. In this study, I utilize Swedish data to reexamine whether goodwill's ability to predict future cash flows improved with the IOA by addressing the abovementioned issues. Using the amortization approach (AA) as a baseline, I replicate prior studies focus on goodwill's ability to predict future cash flows in the years immediately after the implementation of the IOA, and then test whether these findings extend to a longer period covering a full business cycle.

The Swedish setting is methodologically advantageous because the internationally well-documented misuse of the pooling method, which effectively meant opportunistically opting-out the AA, did not systematically occur in Sweden.<sup>1</sup> Before the IOA was mandated in 2005, publicly listed firms adhered to Swedish Generally Accepted Accounting Principals (GAAP), which allowed either the purchase method with systematic goodwill amortizations or the pooling method.<sup>2</sup> Similar to international standards, business combinations could only qualify for pooling accounting if the acquiring firm paid with its own stock in a merger-of-equals. Otherwise, the acquiring firm had to apply the purchase method. However, authorities and auditors strictly enforced the requirement of the Swedish GAAP so

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<sup>1</sup> A number of studies document that the pooling option was opportunistically misused over the  
<sup>2</sup> Swedish publicly listed firms could voluntarily apply IFRS as of 2004. However, the overwhelmingly majority started when mandated to do so in 2005.

that a business combination could not be mislabeled as a merger-of-equals. In fact, the Swedish business press even contended that the strict application of the standards to qualify business combinations for the pooling option was disadvantageous for Swedish firms in the international competition for ‘corporate control’ (Schuster, 2002). From the data collection, I only identify six business combinations reported under the pooling option during 2000-2004. Thus, by using the Swedish setting, the evaluation of goodwill accounting under the IOA, using the AA as a baseline, will provide higher internal validity than most prior studies.

Standard setters’ objectives with the introduction of the IOA in early 2000’s were to eliminate the pooling option and to ensure that intangible assets with indefinite lives acquired in a business combination, which goodwill came to viewed as, would be faithfully represented. Although the initial proposal was to only implement the AA, both approaches have their pros and cons to the accounting for goodwill. While the IOA provides managers the flexibility to stringently present all the intangible assets at fair value, the AA will likely suppress the accounting goodwill because the amortizations are unlikely to reflect the underlying economic value over time. On the other hand, the IOA may also provide opportunistic managers the opportunity to misuse goodwill. Thus, goodwill under the IOA should, relative to the AA, be better at reflecting underlying economics if the manager’s professional judgments are unbiased, and *vice versa*.

Since the introduction of the IOA, goodwill has become a highly material accounting item, now being the single largest item of most firms’ balance sheet (e.g., European Financial Reporting Advisory Group, 2016). Thus, I investigate whether the IOA enhances or dampens goodwill’s ability to predict future cash flows from operations, which according to the IASB is a primary objective of the standard. After

all, the IASB's Conceptual Framework (F4.4 (a)) defines an asset as a resource 'from which future economic benefits are expected to flow to the entity'. This suggests that if goodwill fulfills the definition of an asset, it should be able to predict future cash flows. While impairments are infrequent non-cash events, Bostwick et al. (2016) show that goodwill robustly is able to predict future cash flows in the U.S. setting.

Although a number of studies have documented possible costs associated with the IOA due to opportunistic overallocation and to delayed goodwill impairments, other studies have also provided evidence that goodwill under the IOA, relative to the AA, may better reflect underlying economics, using cash flow prediction models (e.g., Lee, 2011). However, these studies are likely to suffer from self-selection bias because firms in these settings could opportunistically opt-out goodwill by misusing the pooling option. Moreover, the findings of these studies are based on a period immediately after the adoption of the IOA. Very recent studies in accounting have also established that the adoption of new regulation may only have short-term positive effects on accounting practice (c.f., Pincus et al., 2022). Studies further show that goodwill is initially value relevant to investors, but that its relevance diminishes over time (Bugeja & Gallery, 2006; Amel-Zadeh et al., 2020). Thus, this study attempts to provide important insights to the ongoing debate about goodwill accounting under the IOA by (1) providing empirical evidence from a setting likely not affected by the confounding factor of past significant pooling misuse, and (2) investigate whether the previously established short-term positive effects extends over a business cycle.

The results of the empirical tests show that goodwill balances and write offs only are able to predict future cash flows in the period immediately after the adoption of the IOA. Specifically, I find using two models structured similarly to Lee (2011) and Bostwick et al. (2016) that goodwill balance and write offs under IOA, relative to

the AA, are only able to provide a better prediction of future cash flows under IFRS 3 during the period 2005-2011. After the introduction of IFRS 3(R) and the financial crisis of 2011, goodwill is no longer, according to either model, able to predict future cash flows. These findings suggest that goodwill only for a short period immediately after the adoption of the IOA was able to predict future cash flows. Yet, as the IOA period is expanded the improvement of the IOA is, relative to the AA, no longer present.

This study makes several important contributions. First, it contributes to the literature on the ability of goodwill to predict future cash flows. While prior studies document that goodwill impairments under the IOA predict future cash flows (e.g., Jarva, 2009; Bostwick et al., 2016), I show that these results, relative to the AA, are mainly pronounced around relative few years immediately after its introduction, and the predictability seemingly diminishes over time. In fact, I find that the strongest effect is present during the first three years of IOA under IFRS. The documented ability of goodwill under IOA to predict future cash flow does not persist in later years of goodwill accounting under IFRS. These findings suggest that the ability of goodwill under IOA to predict future cash flows may diminish over time and macroeconomic environments as the goodwill balances expand. However, these time periods include financial crises, which could have affected the goodwill accounting. These findings together suggest that the theoretical superiority of using managerial estimates to goodwill accounting under IOA was preferable when goodwill balances were relatively small, but as the balances grew over a longer period, its predictability to future cash flows has diminished to not be significantly different from the AA.

Another important contribution of this study is to provide additional empirical inputs to policymakers in their effort to evaluate the reintroduction of the AA.

Because the internal validity of most prior studies comparing outcomes related to the IOA and the AA is likely to be compromised, this study provides important insights by using Swedish data. A large number of studies have explored the costs and benefits of goodwill under the IOA by using a research design that includes the AA as a baseline. Zhang and Zhang (2017) show that managers are more likely to recognize an excessive proportion of the purchase price as goodwill under the IOA, relative to the AA. Li and Sloan (2017) further find that U.S. managers tend to delay necessary goodwill impairments, and the effect is particularly strong after the introduction of the IOA. In contrast these findings, Lee (2011) finds that the ability of goodwill to predict future cash flows enhanced with the introduction of the IOA.

However, the study by Lee (2011) is limited to a relatively short time period immediately after the adoption of the IOA. Using a longer window spanning standard updates and a full business cycle, I find that while the ability of goodwill to predict future cash flows significantly improved immediately following the adoption of the IOA, the effect is not present in latter periods. Specifically, by using periods of the IOA later after its implementation, I am unable to find a significant difference of goodwill's ability to predict future cash flows between the IOA and the AA. This latter finding, in combination with more managerial discretion under the IOA, may suggest that European policy makers should consider following the FASB and favoring the reintroduction of the AA.

The remainder of the paper is organized as follows. Section 2 provides a background of the relevant accounting standards and prior literature to form the hypotheses. Section 3 provides description about the data and the research design. Section 4 presents descriptive information and the results of the empirical analyses. Section 5 concludes the paper with a summary and conclusions.

## 2. Background and Hypothesis Development

The international adoption of the IOA in early 2000's was controversial. In response to the mounting evidence that the pooling method was misused to inflate future earnings,<sup>3</sup> standard setters proposed a worldwide unified use of the purchase method (Ramanna, 2015). The initial proposal was that acquiring firms should only be allowed to apply the purchase method with systematic amortizations of goodwill (i.e., the AA), with a recoverability-based impairment test (e.g., FASB, 1999). However, international standard setters changed their view and instead promulgated the impairment-only approach, arguing that goodwill is an asset with an indefinite useful life (Ramanna, 2008).

The main difference between the pooling and the purchase method<sup>4</sup> is whether the purchase price over the book value of an acquired target firm's net assets is recognized on the balance sheet of the combined entity. The purchase method requires that the purchase premium paid with cash or stock should be 'allocated' to the appropriate accounting items in the combined entity. Any unrecognized unspecified residual of the purchase premium consisting of, for example, future synergies, is normally recognized as goodwill. The pooling method, on the other hand, mandates that any purchase premium paid with either cash or stock should not be part of the

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<sup>3</sup> In order to reduce the 'drag' on future earnings, acquiring managers deliberately destroyed shareholder value by implementing costly measures to qualify the acquisition for the pooling method (e.g., Lys & Vincent, 1995; Ayers, Lefanowicz & Robinson, 2002). For example, AT&T paid an additional USD 325 million of their stock just to qualify the acquisition of NCR for the pooling method (Walter, 1999).

<sup>4</sup> The purchase method has been replaced by the acquisition method. Although the change of method is largely semantic, there are some subtle disparities. While the purchase method views the target firm as the sum of the acquired assets and liabilities, the acquisition method views the target firm as a whole. This means, for example, that the acquiring firm must disclose any identified contingencies (e.g., lawsuits) in the target firm at the acquisition date. However, the impairment-only approach is applicable to both methods, and acquired non-separable intangibles assets with superior earnings, such as synergies, are recognized as goodwill. Because these disparities are of minor relevance for this paper, I will only refer to the purchase method with respect to the treatment of the purchase premium.

combined entity. When there is a cash payment, any excess payment is written off against reserves so that only the book value of the target firm's net asset is added to the combined businesses. If the payment is based on a stock-for-stock merger, the balance sheets of the two entities are simply combined. Thus, the pooling of interest method did not permit the recognition of acquired synergies such as goodwill, which relative to the AA resulted in inflated future earnings.

Although standard setters eventually favored the purchase method with the IOA, researchers and practitioners have voiced concerns (e.g., Ramanna, 2015; Hlousek, 2002). In particular, critics argue that the IOA, which is based on significant professional judgments, pave the way for managers who misused the pooling option to continue inflating earnings (Watts, 2003; Ramanna, 2008). This is possible by recognizing any overpayments, and other acquired assets, as goodwill and later misusing the managerial judgments so that economic impairments are delayed or not reported. By doing so, managers are able to inflate future earnings. Critics therefore argue that the AA is preferable over the IOA because there will be no incentives to recognize other items as goodwill because the subsequent accounting will be the same for all items, and thus future earnings will not be inflated by opportunistic misclassification (e.g., Ramanna, 2008; Zhang & Zhang, 2017).<sup>5</sup>

In light of the criticism of the IOA, several studies have investigated the accounting for goodwill after the implementation of the IOA, using the AA as a baseline. One strand of the literature examines accounting choices, focusing on either the initial recognition or the subsequent impairments. Zhang and Zhang (2017) investigate whether managers with earnings-based compensation of U.S. firms recognize a higher proportion of the consideration transferred to goodwill under IOA,

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<sup>5</sup> It should, however, be noted that goodwill may be suppressed under the AA, which would favor the IOA to goodwill accounting.

relative to the AA. They find that managers recognize significantly larger proportion of the purchase price as goodwill under the IOA, when it is possible to enhance future earnings and bonuses by subsequently not reporting economic impairments. Li and Sloan (2017) further show that the IOA in the U.S. setting has resulted in relatively inflated goodwill balances and that the subsequent valuation does not represent underlying economics because of untimely impairments. Moreover, Bartov et al. (2021) document that U.S. acquiring firms overpaying for a target firm chose to apply the pooling method to inflate earnings prior to the implementation of the IOA. Furthermore, these pooling firms now, under the IOA, use goodwill to reach the same outcome by inflating the initial recognition of goodwill.

These studies suggest that opportunistic managers of acquiring firms structured the business combination to qualify for the pooling option when they overpaid, and that they under the IOA misuse goodwill to reach the same result. However, goodwill under the IOA may overall be economically represented as long as only a minority of the managers misuses it to inflate future earnings. Another strand of the literature, therefore, investigates whether the ability of goodwill to predict future cash flows improved with the implementation of the IOA. If goodwill under the impairment-only approach is able to predict future economic performance, then the documented increased goodwill balance could, instead of managerial opportunism, be explained by economic suppression under the AA. Cash flow prediction is relevant when evaluating the IOA because the IASB's Conceptual Framework (F4.4(a)) defines an asset as a resources 'from which future economic benefits are expected to flow to the entity.' For goodwill to fulfill the definition of an asset, it should be able to predict future cash flows.

As noted by Bostwick et al. (2016), goodwill impairments should economically and methodologically be connected to future cash flows. Economically, the acquiring firm recognizes goodwill in a business combination because future cash flows will be larger if assets are combined as opposed what the sum of the cash flow of each asset separately. Methodologically, the main input for managers in estimating the subsequent value of goodwill under IFRS is the cash flows at the cash-generating unit (CGU) level. Thus, goodwill balances under the IOA should, all else equal, provide a better representation of future economic performance over time as long as the underlying economic value of goodwill does not systematically depreciate.

Lee (2011), therefore, examines whether the ability of goodwill balances and impairments to predict future cash flows improved with the U.S. adoption of the IOA. By comparing the IOA period of 2004-2006 with the AA period of 1996-1998, he finds that goodwill's predictability of future cash flows is more pronounced under the IOA. Furthermore, Lee and Yoon (2012) investigate how the implementation of the IOA under SFAS 142 impacts the ability of earnings to predict future operating cash flows. They find for the period 1995-2006 that the ability of earnings to predict future cash flows improved after the enactment of SFAS 142, and this is especially pronounced among firms with the highest level of discretionary accruals. These findings are likely related to the fact that the systematic amortizations by construction are not intended to fully reflect the underlying economics of goodwill subsequent to initial recognition. The IOA, on the other hand, permits the manager to signal the underlying economic value of the goodwill balances by using impairment tests (Watts, 2003).

A number of studies also investigate goodwill and cash flow predictions exclusively under the period of IOA. Jarva (2009) tests whether goodwill impairments

under the IOA is related to the firm's future cash flows using a sample of 327 firm-years of impairments and 9,960 firm-years of non-impairments in the U.S. He finds an association between current goodwill impairments and lower future cash flows in the years  $t+1$  and  $t+2$  during the IOA period 2002-2005. These findings suggest that managers use the professional judgments of the IOA to make financial statements more informative and relevant to investors. However, he also documents that goodwill impairments tend to lag the economic impairment. Furthermore, Bostwick et al. (2016) extend the Barth et al.'s (2001) cash flow prediction model and show that goodwill impairments under IOA during 2001-2009 provide a significant incremental improvement in the prediction and forecasting of future cash flows.

Thus, the literature consistently finds that while goodwill under the IOA may be misused under certain conditions, it is better able to predict future cash flows relative to goodwill under AA. However, the evidence on the relative ability of goodwill to predict future cash flows is mostly based on the period immediately following the adoption of the IOA. Most studies only use a narrow window and do not test goodwill's ability of predicting future cash flows over at least an economic life cycle. Based on these insights, I formulate the first hypothesis in line with prior findings as follows:

**Hypothesis 1:** *relative to the AA, the ability of goodwill to predict future cash flows improved in the period immediately after the adoption of the IOA.*

What appears to be contradictory findings in the literature - that managers tend to misuse goodwill under the IOA, while the ability of goodwill to predict future cash flows has improved - may actually reflect that only few managers actively misrepresent goodwill. However, since the implementation of the IOA, the literature documents that the goodwill balance of most firms worldwide has increased

significantly, suggesting that more than a minority of managers recognize a larger proportion of the purchase premium as goodwill. As noted by Johnson and Petrone (1998), goodwill should only consist of synergies, but may also be inflated by overpayments, misvalued or unrecognized assets. Because acquired and internally generated synergies likely were not fully represented under the AA, a void of ‘unrepresented’ synergies may persist over the time immediately after the adoption of the IOA. As opportunistic managers recognize other assets than synergies as goodwill under the IOA (c.f., Shalev et al, 2013; Detzen & Zülch, 2012), past ‘unrepresented’ synergies will be represented in the immediate years following the adoption of IOA. But as goodwill accrues from opportunistic managers’ recognition of other assets than synergies, its representation of the firm’s underlying economics will start to diminish. If so, then the ability of goodwill to predict future cash flows will only be temporary in the immediate period following the adoption of the IOA.

Thus, another potential explanation could be that goodwill is significant accounting item, but it was suppressed under the AA so that increased goodwill balance under the IOA was initially more relevant. But as the documented misuse of goodwill under the IOA continues, the economic relevance diminishes over time. This may also be in line with results from experimental psychology, which finds that the acceptance for unethical behavior occurs slowly, and not in an abrupt shift, induced by a slippery-slope effect. This would suggest that managers erode goodwill accounting under the IOA gradually and therefore the balance will become economically unviable in later periods (c.f., Gino & Bazerman, 2009).

After all, studies on the economic relevance of goodwill under the IOA have mostly focused on the period immediately after the adoption of the IOA, but very few extend to periods after different macroeconomic events to make sure the application

of the IOA and the ability to predict future cash flows is static over time. The combination of economically suppressed goodwill under AA and the documented ‘over-allocation’ to goodwill under the IOA, could explain why goodwill under the first few years of the IOA is economically relevant. But with time, the economic relevance of goodwill under IOA may eventually diminish, meaning that the goodwill under IOA in later periods is no longer able to predict future cash flows.

This reasoning would be aligned with the findings by Pincus et al. (2022) that the introduction of the Sarbanes-Oxley Act (SOX) did, as prior literature report, impact accrual and real earnings management in the early years following its adoption. However, with an extend sample period, they find that the relation diminishes over time. Pincus et al. (2022) argue that prior literature have used relatively few years post-SOX (on average 3,5 years). The literature evaluating the adoption of the IOA has also mainly used a period immediately following the IOA of about 3 years. Whether extending the sample period would change the conclusion about goodwill’s ability to predict future cash flows after the introduction of the IOA is an empirical question.

Overall, these arguments suggest that goodwill’s ability to predict future cash flows under the IOA, relative to the AA, may only be pronounced in the period immediately after the its adoption. However, with time, the ability will diminish because goodwill will increasingly reflect other items than underlying economic synergies. Thus, I will test the following hypothesis:

**Hypothesis 2:** *relative to the AA, the ability of goodwill to predict future cash flows will under the IOA diminish with time, and the differences between IOA and AA will eventually become insignificant.*

### 3. Method

#### 3.1 *The Swedish Setting*

To explore the hypotheses, I utilize data from Sweden because managers before the implementation IOA were not able to opportunistically structure the business combination to mislabel business combinations as mergers-of-equals. Before 2005, Swedish GAAP mandated firms to either apply the purchase method with yearly amortizations or the pooling method.<sup>6</sup> Because of this, goodwill balances reported under the AA in Sweden are likely not biased by systemic misuse of the pooling option. Although Swedish GAAP was based on IAS 22, the application was much stricter and only permitted Swedish firms to apply the pooling option for mergers of equals.<sup>7</sup> In Europe and internationally, on the other hand, acquiring firms could relatively easily opt-out goodwill by misusing the pooling option, or even offsetting goodwill directly against reserves, (c.f., Lys & Vincent, 1995; Amel-Zadeh et al., 2021). As a consequence, goodwill balances in most other settings are likely not directly comparable before and after the introduction of the IOA because the initial recognition is related to different incentives.

Aligned with the strict application of Swedish GAAP to qualify a business combination for pooling, I only find 6 reported deals using the pooling option. For the overall majority of completed business combinations, Swedish acquiring firms applied the purchase method, with systematic goodwill amortizations over a period

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<sup>6</sup> It should be noted that publicly listed firms in Sweden could start applying IFRS from 2004. These firm-years are, as described later, dropped from the sample.

<sup>7</sup> Most of the Swedish listed merging-firms reporting the application of the pooling method have been domiciled in Finland. The Finnish GAAP permitted more flexible requirements to qualify the deal for pooling accounting. Examples of major reporting of pooling deals between Finnish and Swedish firms include the merger between Tieto and Enator, and the merger between Fazer and Cloetta. There are also examples of how Finnish acquiring firms restructured the target in order to later qualify the deal for pooling, a practice that was strictly prohibited under Swedish GAAP. By only including the Swedish listed firms domiciled in Sweden, I am able to reduce any potential problems with internal validity that prior studies may suffer from when exploring the IOA, using the AA as the baseline.

that could typically not exceed 20 years (RR 1:96). However, if the acquiring firm could provide convincing evidence that future synergies of the acquisition could sustain for a longer period than 20 years, it was possible to amortize goodwill on a straight-line basis over a 40-year period. In the sample of this study, only two firms (8 firm-years) report an amortization-period of 40 years for at least one of their goodwill items.

With the European ratification of IFRS in 2005, Swedish listed firms became mandated to comply with the IOA of IFRS 3 and IAS 36. This change had two major effects for goodwill accounting. First, the excess payment over the target firm's book value of net assets should be recognized as other assets of the target firm before being recognizing goodwill. In other words, initially recognized goodwill under IFRS should relative to Swedish GAAP goodwill, all else equal, better reflect acquired synergies, as the excess payment related to specific assets would no longer be recognized as goodwill. Second, acquiring firms are no longer allowed to amortize goodwill. Instead, goodwill ought to be tested for economic impairment at the cash generating unit (CGU) level on a yearly basis. This latter change would incentivize opportunistic managers to recognize excessive proportion of the purchase price as goodwill, as discussed in the previous section.

### ***3.2 Sample***

I start using a list of all publicly listed firms on Stockholm Stock Exchange (SSE) over the period 2000-2019, with 546 unique firm and 5358 firm-years. Because goodwill from the Swedish setting is missing in COMPUSTAT Global, I hand-collect data on goodwill balances and write offs by going through 5358 annual reports. In total, I find 3682 firm-years with reported goodwill balances with 671 firm-years of

goodwill impairments (198 firm-years during AA period) as well as 833 firm-years of goodwill amortizations.

Following prior studies, I collect most of the data on listed firms domiciled in Sweden from COMPUSTAT Global covering fiscal years over the period 2000-2019. After I merge these two datasets, I lose 539 firm-years. I further restrict the initial sample by removing financial firms based on Standard Industrial Classification (SIC) codes ranging 6000-6999, and exclude another 758 firm-year observations. Moreover, I restrict the sample by dropping missing observations for total assets (AT) and sales, as well as negative book value of equity and non-positive sales and missing goodwill on the balance sheet, I drop another 1197 firm-year observations. After I drop years when it is not possible to find the data on relevant variables in the period before or after, I drop another 758 firm-years, and thus reach the final sample of 311 unique firms and 2843 firm-years. Unlike prior studies on cash flow predictions, I follow a recent study by Bostwick et al. (2017) and do not reduce the sample based on cutoffs related to sales or firm size. By including all types, the results will be more generalizable to settings with small and large publicly listed firms.

[Table 1 about here]

### ***3.3 Empirical Model and Descriptive Statistics***

To further investigate whether goodwill's ability under the IOA to predict future cash flows has relative to AA has evolved over time, I use a similar model to Lee (2011).

$$FCF_{it+k} = \alpha + \beta_1 IFRS \times GDWL + \beta_2 GDWL + \beta_3 IFRS + \beta_4 NI + \beta_5 BVWG + \varepsilon. \quad (1)$$

I use COMPUSTAT to identify and calculate most of the variables. FCF is the firm's annual cash flow from operations (oancf) at year t+k. *IFRS* is an indicator variable taking the value of one if the observation is in the period after the implementation of IFRS 3, and zero otherwise. *GW* is the firm's goodwill (gdwl) at year t. Following the model by Barth et al. (2001), all variables are deflated by the average book value of total assets (at), which is computed as the average of present year and prior year total assets. *NI* is the net income before extraordinary item (ib) before goodwill charge (amortization and impairment of goodwill) at year t. *BVWG* is the book value of equity (ceq) excluding goodwill at year t.

$$FCF_{it+k} = \alpha + \beta_1 IFRS \times GDWL\_WO + \beta_2 GDWL\_WO + \beta_3 GDWL + \beta_4 IFRS + \beta_5 NI + \beta_6 BVWG \quad (2)$$

*GDWL\_WO* is the amount of goodwill charged deflated by average total assets. Unlike Lee's (2011) use of estimated goodwill charges under the AA, I use the actual goodwill amortization and impairment charges as reported in the annual reports before the adoption of the IOA in 2005 for each firm and year. The goodwill impairment is also the charge reported in the annual report of each firm and year as of 2005 and onwards.

The fact that the goodwill write-offs (*GDWL\_WO*) contain amortizations and impairments under the AA and only impairments under the IOA, makes it possible to make some inference about the fair value evaluation of goodwill accounting.

Table 2 reports the summary statistics of the final sample of 2843 firm-years. Goodwill write-offs (*GDWL\_WO*) is on average under 1 percent of total assets, ranging from 0 to 21 percent. Average goodwill (*GW*) make up 22.5 percent of total assets and for the most extreme firm over 80 percent of total assets is goodwill. Book value of equity when excluding goodwill is for the average firm 24 percent of total

assets. Table 3 reports the Pearson and Spearman correlations of the key variables of the Lee (2011) model. The Spearman correlations show that the 1-year-ahead cash flows (*FCF*) are positively correlated with the key variables in the Lee (2011) model, but negatively correlated with goodwill and goodwill write-offs. Furthermore, the Pearson correlations indicate that negative relation between *FCF* and goodwill and goodwill write off, respectively. However the correlations are relatively weak, suggesting that the goodwill balances and write-offs may be linked to firms' long-term ability to generate cash flows. These correlations are in line with what Lee (2011) also find.

[Table 2 & 3 about here]

#### **4. Empirical Results and Analyses**

Tables 4 and 5 report evidence on the two hypotheses investigating whether the ability of goodwill to predict future cash flows has changed since the adoption of the IOA, using the AA as a baseline. All reported t-statistics are computed using White's (1980) heteroscedasticity-consistent standard error. To mitigate the effect of the extreme observations on the regression analyses, I winsorize the top and bottom 1% of the distribution.

Column A of Table 4 presents the regression results from Eq. 3, focusing on the periods 2001-2003 and 2005-2007. The coefficient of the interaction between IOA under IFRS 3 and the reported impairment  $IFRS \times GDWL\_WO$  is statistically significant at the 5% level. However, the goodwill write-offs  $GDWL\_WO$  or goodwill  $GDWL$  are not statistically significant, suggesting that goodwill accounting in general are not adding value to the cash flow predictions. Moreover, and similar to Lee

(2011), net income *NI* is statistically significant while book value of equity after adjusting for goodwill *BVWG* is not statistically significant. Columns B and C of Table 4 show the same results after dropping observations around the year most firms adopted IOA in 2005 and including all IFRS 3 years (i.e., 2005-2011), respectively.

Column A of Table 5 reports that goodwill interacted with IFRS  $IFRS \times GDWL$  is positive and statistically significant, indicating that goodwill under the IOA provides more information relevant in predicting future cash flows. Columns B and C of Table 5 also show that regardless of window around IOA, goodwill under IFRS continues to be positive and significant. However, goodwill in general tends to be negative, and in some of the columns significant. Moreover, net income is positive and significant in all models, which is consistent with the findings of prior studies. The findings in Columns A to C in Table 4 and 5 lend support to hypothesis H1, indicating that the ability of goodwill write offs and goodwill balances to predict future cash flows improved in the period immediate with the adoption of IOA.

Column D of Table 4 shows that goodwill impairments *GDWL\_WO* are not statistically significant after the adoption of IFRS 3(R) in predicting future cash flows. However, goodwill *GDWL* is negative and statistically significant, suggesting that goodwill in general does not provide any valuable information to predict future cash flows. Furthermore, Column D of Table 5 shows that the interaction between IFRS and goodwill  $IFRS \times GDWL$  is not statistically significant, while goodwill *GDWL* in general is negative and statistically significant. The book value of equity adjusted for goodwill *BVWG* and *IFRS* are in general not statistically significant in explaining future cash flows. These two findings suggest that goodwill is not able to predict future cash flows in latter periods after the introduction of the IOA. This aligns with the findings by Pincus et al. (2022).

[Table 4 & 5 about here]

Columns E to H of Tables 4 and 5 further show how the improved ability of write offs and goodwill balances to predict future cash flows after the adoption of the IOA starts to diminish and eventually become negligible in later periods. Column F indicates a positive and statistically significant relation that goodwill write offs are able to predict future cash flows in the period 2013-2015, but on at a 10% significance level. However in all the other periods that can be found in Columns E, G and H in Table 4 indicate that goodwill is not able to predict future cash flows after 2012 and onwards, which is about six years after the adoption of the IOA. Columns E to H of Table 5 also show that the relationship is diminishing and eventually becomes negligible as the time from the adoption of the IOA elapses. After 2014, about ten years after the adoption of the IOA, goodwill balances are no longer able to predict future cash flows. In sum, these findings in Columns D to H of Table 4 and 5 indicate that the ability of goodwill to predict future cash flows will, relative to the AA, diminish with time and eventually be negligible.

## **5. Conclusions**

In this study, I use the Swedish setting to reexamine the ability of goodwill to predict future cash flows under the impairment-only approach, using the amortization approach as a baseline. I utilize data from the Swedish setting because the pooling option was not systemically misused to opt out goodwill, making it possible to address the potential problem with internal validity of most prior studies. In most other European settings, goodwill likely suffers from self-selection bias because

managers could before the adoption of IOA under IFRS easily structure a business combination so that it qualified for the pooling option when they wanted to inflate future earnings. The Swedish setting may, therefore, offer important inputs as international standard setters considers new alternatives to account for goodwill, including the reintroduction of the AA.

Similar to Lee (2011), I find that the ability of goodwill write-offs and balances to predict future cash flows is more pronounced in the period immediately after the adoption of the IOA. However, when comparing goodwill's ability to predict future cash flows between the AA under Swedish GAAP and the IOA under IFRS 3(R), I find no consistent evidence of improved goodwill accounting. While no model provides any evidence suggesting that the AA is able to predict future cash flows, the results of this study indicates that the IOA does not give more relevance in latter periods. These findings speak more directly to the debate on whether goodwill accounting should be based on alternative methods other than the IOA, including the reintroduction of the amortization approach. Furthermore, the results of this study could explain the inconsistent findings in the literature that goodwill is inflated by managerial incentives or type of ownership structure, while goodwill in the early years after the implementation of the IOA is able to predict future cash flows. Perhaps the suppressed representation of prior acquired synergies during the AA got representation of inflated goodwill immediately after the adoption of the IOA, but as the managers and controlling owners continue to inflate goodwill, the representation diminished and became negligible.

Future studies should investigate further whether the well-documented relative advantage of goodwill accounting under the IOA diminishes over time. While a large body of literature finds evidence suggesting that goodwill under certain conditions is

misrepresented, it is not clear whether these findings are the general state. It is likely that goodwill accounting choices are non-static over a business cycle, suggesting that the relevance of goodwill accounting may vary over time. As the goodwill has increasingly become a large item of most firm's balance sheet, the more costly it will become to report economic impairments regardless of the economic environment. Thus, connecting the time factor and the increasing balances to regulatory oversight and governance would be interesting future avenues to explore the phenomenon. In particular, it would be interesting to explore the role of the signing auditors and how goodwill is accounted for over time.

It should be noted that the Swedish setting has some unique features that may not make these results fully generalizable to the settings where controlling owners are not common. Frii and Hamberg (2021), for example, show that managerial incentives may not play a significantly role in the accounting for goodwill in Sweden, as type of ownership is more likely to shape the initial recognition of goodwill. While most settings around the world share these features regarding the dynamics of ownership, future studies should explore whether the ability of goodwill to predict future cash flows is static or dynamic over a business cycle with different managerial incentives.

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**Table 1**

Description	Number of firms	Number of firm-years
Firms listed on the SSE in the period 2000 to 2019	546	5358
Firm years not available in COMPUSTAT	483	-539
Excluding utilities and financial institutions (SIC codes: 6000–6999)	406	-758
Excluding missing AT and Sales	397	-39
Excluding firms with no goodwill	330	-828
Excluding negative book value and non-positive total sales	311	-330
Excluding observation with unavailable data for change	311	-758
<b>Final Sample</b>	<b>311</b>	<b>2843</b>

**Table 2**

Variable	Full sample (N= 2843)					
	Observations	Mean	Median	Std. Dev.	Min	Max
<b>GDWL_WO</b>	<b>2843</b>	<b>.00870</b>	<b>0</b>	<b>.02926</b>	<b>0</b>	<b>.21050</b>
<b>GDWL</b>	<b>2843</b>	<b>.22576</b>	<b>.19415</b>	<b>.18049</b>	<b>.00072</b>	<b>.80486</b>
FCF	2842	.07539	.08362	.09492	-.31447	.30745
NI	<b>2843</b>	.04303	.05467	.10047	-.42912	.26834
BVWG	<b>2843</b>	.24158	.23845	.24605	-.52310	.89556

**Table 3**

Variable	Full sample (N= 2843)				
	GDWL_WO	GDWL	FCF	NI	BVWG
<b>GDWL_WO</b>		<b>-0.1053***</b>	<b>-0.1624***</b>	<b>-0.1930***</b>	<b>-0.0270</b>
<b>GDWL</b>	<b>0.0740***</b>		<b>-0.0371**</b>	<b>-0.0210</b>	<b>-0.6612***</b>
<b>FCF</b>	<b>-0.2790***</b>	-0.0225		<b>0.6606***</b>	<b>0.1431***</b>
<b>NI</b>	<b>-0.2865***</b>	0.0055	<b>0.7166***</b>		<b>0.2287***</b>
<b>BVWG</b>	<b>-0.1466***</b>	<b>-0.6679***</b>	<b>0.0977***</b>	<b>0.1651***</b>	

Spearman (above diagonal) and Pearson (below diagonal) correlation coefficients

**Table 4**

	A	B	C	D	E	F	G	H
	2001-2003 vs 2005-2007	2001-2003 vs 2006-2007	2001-2003 vs 2006-2011	2001-2003 vs 2013-2018	2001-2003 vs 2012-2014	2001-2003 vs 2013-2015	2001-2003 vs 2014-2016	2001-2003 vs 2016-2018
	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$
<b>IFRS*GDWL_WO</b>	<b>.38029**</b> (.19527)	<b>.49507***</b> (.20857)	<b>.41728***</b> (.16640)	<b>.21414</b> (.17825)	<b>.29635</b> (.25249)	<b>.40635*</b> (.23891)	<b>.19946</b> (.20799)	<b>.15050</b> (.18185)
<b>GDWL_WO</b>	<b>.04368</b> (.19138)	<b>.07112</b> (.14342)	<b>.06201</b> (.15173)	<b>.19093</b> (.21784)	<b>-.09491</b> (.25599)	<b>-.07070</b> (.27065)	<b>.06610</b> (.26249)	<b>.13601</b> (.25216)
<b>GDWL</b>	<b>.01472</b> (.02472)	<b>.00097</b> (.04519)	<b>-.03888</b> (.03418)	<b>-.04359*</b> (.02284)	<b>-.00408</b> (.03618)	<b>-.01821</b> (.03663)	<b>-.05106*</b> (.03187)	<b>-.04224</b> (.02821)
IFRS	-.00829 (.01585)	.03535 (.04220)	.00742 (.02635)	.02031* (.01067)	.01668 (.01411)	.03464** (.01439)	.03136* (.01960)	.02377 (.01746)
NI	.48171*** (.04284)	.48713*** (.05130)	.48770*** (.03876)	.63005*** (.05136)	.56807*** (.06232)	.59412*** (.06424)	.58672*** (.06819)	.58625*** (.06559)
BVWG	.02793 (.02305)	.05392 (.03605)	.01172 (.02606)	-.02640 (.01840)	-.00106 (.02909)	-.00339 (.02933)	-.014878 (.02573)	-.01487 (.02232)
Constant	.09566*** (.02691)	.07561*** (.02636)	.07671*** (.01967)	.01994 (.02123)	.00762 (.02465)	.00609 (.02471)	.06001*** (.02050)	.04067 (.02402)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	680	547	962	1467	782	780	799	824
Adj. R2	0.5381	0.6028	0.5512	0.6611	0.667	0.6806	0.6758	0.6531

**Table 5**

	A	B	C	D	E	F	G	H
	2001-2003 vs 2005-2007	2001-2003 vs 2006-2007	2001-2003 vs 2006-2011	2001-2003 vs 2013-2018	2001-2003 vs 2012-2014	2001-2003 vs 2013-2015	2001-2003 vs 2014-2016	2001-2003 vs 2016-2018
	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$	$\Delta FCF_{t+1}$
<b>IFRS*GDWL</b>	<b>.10260***</b> (.03693)	<b>.13273***</b> (.04093)	<b>.06184***</b> (.03138)	<b>.03073</b> (.01956)	<b>.09806**</b> (.03791)	<b>.08197**</b> (.03905)	<b>.01635</b> (.03001)	<b>.00806</b> (.02882)
<b>GDWL</b>	<b>-.07505*</b> (.04274)	<b>-.06711</b> (.04529)	<b>-.08093**</b> (.03735)	<b>-.04797**</b> (.02252)	<b>-.06371</b> (.04169)	<b>-.06729</b> (.04229)	<b>-.04438</b> (.03155)	<b>-.03492</b> (.02814)
IFRS	-.00227 (.02590)	.02163 (.04242)	.00217 (.02673)	.01653 (.01110)	.00635 (.01653)	.02761* (.01674)	.03154 (.02168)	.02488 (.01938)
NI	.46682*** (.04664)	.50374*** (.04847)	.51148*** (.03724)	.68714*** (.04413)	.62435*** (.05837)	.65381*** (.06029)	.65440*** (.05867)	.64789*** (.05518)
BVWG	.04573 (.03206)	.06406* (.03512)	.01621 (.02575)	-.02332 (.01891)	.01315 (.03058)	.00822 (.03120)	-.00554 (.02805)	-.00764 (.02417)
Constant	.08199*** (.02354)	.07563*** (.02474)	.07643*** (.01910)	.02350 (.02229)	.00591 (.02646)	.00369 (.02689)	.05490*** (.02046)	.03736* (.02395)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	680	547	962	1467	782	780	799	824
Adj. R2	0.5468	0.6125	0.5574	0.6632	0.6612	0.6751	0.6735	0.6523