



The association between goodwill impairments and accrual-based earnings management in Finnish listed companies during 2005–2014

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Purpose of the study

The purpose of this paper is to examine whether there is an association between goodwill impairments and accrual-based earnings management in Finnish listed companies during 2005–2014, and whether these impairments are associated with big bath behavior. Until 2005, goodwill was amortized on a straight-line basis, after which Finnish listed companies have been stipulated to compile their consolidated financial statements in accordance with IFRS. Notwithstanding the benefits IFRS has been expected to entail, the adoption of IFRS 3 has provided managers a wide gamut of discretion. The topic is relevant for examination as no results regarding Finnish listed companies have been reported separately. Moreover, Finnish reporting environment open a new window for further examination in regards to the topic. As the world was substantially affected by the financial crisis in 2008–2009, this sub period is also taken into account in this paper. The findings of this paper are new and totally different compared to prior literature.

Data and research design

The data extend from the adoption year of IFRS 2005 to 2014, and the sample comprises firms listed in OMX Helsinki. However, the data are also obtained from year 2000 to document yearly goodwill amortizations prior to the adoption year. The final sample comprises 899 firm-year observations spanning from years 2005–2014. The hypotheses are tested with a multivariate ordinary least squares (OLS) regression analysis. In addition to this, logistic regression model is used to examine big bath behavior

Findings

This paper documents that goodwill impairments are not associated with accrual-based earnings management nor with big bath behavior in Finnish listed companies. In regards to financial crisis, this paper provides evidence that Finnish listed companies did not use goodwill impairments as an accrual based earnings management.

Keywords goodwill impairments, earnings management, big bath, IAS 36, IFRS 3, discretionary accruals, financial crisis, modified Jones model

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Työn nimi Liikearvon alaskirjausten käyttö jaksotuseriin perustuvana tuloksenohjailukeinona suomalaisissa pörssiyrityksissä vuosina 2005–2014

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Tutkielman tarkoitus

Tämä tutkielma tarkastelee, onko liikearvon alaskirjausten ja jaksotuseriin perustuvan tuloksenohjailun välillä yhteyttä suomalaisissa pörssiyrityksissä vuosina 2005–2014, ja ovatko nämä alaskirjaukset yhteydessä big bath -käyttäytymiseen. Liikearvo tuli poistaa tasapoistoin vuoteen 2005 asti, minkä jälkeen pörssiyritysten on täytynyt laatia konsernitilinpäätöksensä IFRS-standardien mukaisesti ja näin ollen testata liikearvon arvonalentumista vuosittain IAS 36 -standardin mukaisesti. IFRS-standardien käyttöönotto on tarjonnut johdolle merkittävästi harkinnanvaraisuutta, minkä vuoksi aihetta on perusteltua tutkia. Aiheeseen liittyviä tuloksia ei ole myöskään aikaisemmin julkaistu suomalaisten pörssiyrityksien osalta, minkä lisäksi suomalainen raportointiympäristö tarjoaa uuden tarkastelukohteen aikaisempaan kirjallisuuteen verrattuna. Vuosina 2008–2009 maailmaa ravisteli finanssikriisi, minkä vuoksi kyseinen ajanjakso on myös tässä tutkielmassa tarkastelun kohteena. Tämän tutkielman tulokset ovat uusia ja täysin erilaisia verrattuna aikaisempiin tutkimuksiin.

Aineisto ja tutkimusmetodi

Aineisto ulottuu vuodesta 2005 vuoteen 2014 ja koskee Helsingin pörssissä listattuja yrityksiä. Aineisto on kerätty myös vuodesta 2001 asti nähdäksemme liikearvon tasapoistojen lukumäärän vuositasona ennen IFRS-standardien käyttöönottoa. Lopullinen aineisto koostuu 899 havainnosta vuosilta 2005–2014. Tutkielman hypoteesit testataan pienimmän neliösumman (OLS) monimuuttujaregressioanalyysillä. Big bath -tuloksenohjailua testataan erikseen logistisella regressioanalyysillä.

Tulokset

Liikearvon alaskirjaukset eivät ole yhteydessä jaksotuseriin perustuvaan tuloksenohjailuun eikä myöskään big bath -käyttäytymiseen suomalaisissa pörssiyrityksissä. Finanssikriisin osalta tutkimustulokset osoittavat, että liikearvon alaskirjaukset eivät ole yhteydessä jaksotuseriin perustuvaan tuloksenohjailuun.

Avainsanat liikearvon arvonalentumiskirjaukset, tuloksenohjailu, big bath, IAS 36, IFRS 3, harkinnanvaraiset jaksotuserät, finanssikriisi, modifioitu Jonesin malli

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Abbreviations

ASB	Accounting Standards Board
CGU	Cash-generating unit
FASB	Financial Accounting Standards Board
GAAP	Generally Accepted Accounting Principles
IASB	International Accounting Standards Board
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
SEC	United States Securities and Exchange Commission
SFAS	Statement of Financial Accounting Standards
U.S. GAAP	Generally Accepted Accounting Principles in the United States

1. INTRODUCTION

1.1 Background and motivation

Since January 1st 2005, all European listed companies have been obliged to adopt IFRS (International Financial Reporting Standards) in order to prepare their consolidated financial statements. IFRS-based reporting has changed the regulation framework compared to indigenous GAAP systems, which have now been dislodged in IFRS adopting jurisdictions (Carlin and Finch, 2008). Ravlic (2003) explains that the underlying idea for replacing the amortization method according to plan is that it does not convey valuable information for the users of financial statements. To support this, Donnelly and Keys (2002) state that goodwill impairment is reflected to the value of goodwill in a more information-conveying manner than the amortization over a set number of years. Colquitt and Wilson (2002) agree with this as the impairment test approach better satisfies the underlying expectations of the analysts and other financial statement users providing more meaningful information about intangible assets. The reason for this is that IFRS does not require amortization of goodwill on a straight-line basis irrespective of the individual situation.

Over a substantial period of time, goodwill has been an extremely interesting and controversial subject in accounting (Jahmani *et al.* 2010; Davis, 2005; Ramanna and Watts, 2009). Goodwill can be defined as future-related benefits that arise from the assets which cannot be identified individually and thereby recognized separately. In accordance with IFRS 3, management is required to value all identifiable intangible and tangible assets at fair value prior to the goodwill recognition. In Finnish reporting environment, balance sheet items have not traditionally been valued at fair value but at acquisition cost. The matter regarding the qualified accounting treatment for goodwill has been challenged by both the financial statement preparers and the standard setters for decades (Qasim *et al.* 2013). Much of the debate concentrates on whether goodwill ought to be recognized as an asset, and if so, whether it ought to be subsequently amortized according to plan or written off as an impairment (Bugeja and Gallery, 2006). The IASB (2005) alleges that the impairment approach better captures the underlying value of goodwill compared to the amortization. Thereby, according to IAS 36, firms are required to test the goodwill for impairment annually – at least – and, if there is any indication for impairment, write off the goodwill.

It is not, however, only the benefits that have emerged after the adoption of IFRS. As IFRS 3 requires managers annually to perform an impairment test for goodwill, it simultaneously provides management the opportunity for accounting discretion by requiring them to make manifold important assumptions and estimates. The most important ones are the determination of cash-generating units (CGUs), the subsequent allocation of goodwill to CGUs and the recoverable amount estimates of these units as are discussed in more detail in section 2. (Qasim *et al.* 2013) Thereby, IFRS regarding goodwill accounting provides management lots of tools for creative accounting.

In accordance with IAS 36, goodwill impairment testing requires substantial estimates from management compared to straight-line amortization method, thus making it prone to earnings management actions. The subjectivity by the managers provides opportunities for management to manipulate earnings, which may cause a distorted image in the financial statements provided for the shareholders and stakeholders of the company. Hence, it is important to examine if the adoption of IFRS has affected financial statements making them vulnerable to the actions of earnings management. A common characteristic for research examining earnings manipulation is that they do not take the macroeconomic environment into account. In other words, it is supposed that earnings management actions are not affected by the general economic conditions (Filip and Raffournier, 2014). This paper contributes to prior literature by taking financial crisis into account as well. Filip and Raffournier (2014) state that dramatic changes in the economic climate can be assumed to affect the firm's propensity to manipulate earnings. Given this reason, financial crisis factor is rationalized to take into consideration.

As section 3 depicts, earnings can be manipulated either with accrual-based or real activities earnings management. Usually earnings are manipulated due to external demand to meet earnings forecasts and increase share price, but earnings can be manipulated other way as well. It is completely possible for the company to manage the earnings to look worse, at least in a certain period. For instance, when things are already bad, clearing out the balance sheet does only little harm to the company's reputation (Healy, 1985). This type of earnings management is called *big bath* (Healy, 1985). As goodwill can be regarded as a discretionary accrual due to the wide discretion granted for management, this paper focuses on accrual-based earnings management. The management might also choose a convenient time to recognize an impairment loss to smoothen the earnings (Jahmani *et al.* 2010). These types of earnings management, among others, are discussed in more detail in section 3.

In prior literature, the use of goodwill impairments to manage earnings has been examined to some extent (for example, see AbuGhazaleh *et al.* 2011; Alves, 2013; Bisogno, 2015; Jordan and Clark, 2004). Some of these studies focus on the SFAS 142 standard, which is quite similar to IAS 36. IFRS is obligatory in a plethora of countries, but reporting environments in different countries differ substantially. For example, prudence has been one of the main principles in Finnish accounting environment, and it still is despite the international accounting thinking (Virtanen, 2009). The principle of prudence denotes the use of historical costs instead of fair values. Hence, Finland offers an interesting environment to examine whether the use of fair values in IAS 36 has affected managements' discretion regarding the goodwill impairments. To the author's knowledge, no studies have solely focused on examining the goodwill impairments under IAS 36 as a tool of earnings management in Finnish listed companies. Alves (2013) focuses on the association between goodwill impairments and discretionary accruals in Portuguese listed firms, and Bisogno (2015) examines whether Italian publicly quoted companies use goodwill impairments to manipulate earnings. In accordance with this paper, they both use modified Jones model proposed by Dechow *et al.* (1995) to estimate the discretionary accruals.

1.2 The objective and scope of the research

The purpose of this paper is to examine whether there is an association between goodwill impairments and accrual-based earnings management – in general – in Finnish listed companies following the mandatory adoption of IFRS. Moreover, this paper examines whether the goodwill impairments are associated with big bath actions. Condensed, the research question of this paper is as follows:

Have Finnish listed companies used goodwill impairments to manipulate earnings following the mandatory adoption of IFRS?

In this study, the focus is on IFRS 3 and IAS 36 -based goodwill recognition and impairment due to the fact that Finnish listed companies are to compile their consolidated financial statements in accordance with IFRS. It must be taken into consideration that the SFAS standards bear much resemblance to the IFRS standards regarding the goodwill recognition and goodwill impairment. Given this, prior literature focusing on SFAS 142 has also been used in the literature review of this paper.

As section 4 demonstrates, lots of studies have been conducted regarding goodwill impairments and earnings management. Notwithstanding this, this paper contributes to prior accounting literature in three ways. First, although Finnish listed companies have been included in many studies (for example, see André *et al.* 2015), the results regarding these companies have not been reported separately. Second, standard setters need to know whether certain standards and accruals are vulnerable to earnings management. Given these, standard setters may be aware of this regarding Portuguese and Italian listed companies, but Finnish reporting environment brings another dimension to this. Third, as company's decision to impair goodwill or not seems to be an important corporate event due to the influence on firm performance and thus market value (Hirschey and Richardson, 2002), it is important to examine whether IFRS 3 and IAS 36 constrain the management's discretion to impair goodwill. Moreover, the results of this paper ought to be of interest to regulators and investors in the light of enhancing the quality of financial reporting.

The concept of goodwill has been examined very widely, and it has been in the interest of researchers for a substantial period of time. Moreover, after the adoption of IFRS 3 and IAS 36, goodwill has been subsumed to earnings management actions as well. Given these, the literature review concentrates first on goodwill recognition and impairments according to IFRS 3 and IAS 36, after which on earnings management and the goodwill impairments as a part of earnings management actions. Furthermore, prior literature regarding goodwill impairments as a part of earnings management actions is presented as well.

1.3 Research design and main findings

The essential parts of this study are IFRS 3 (Business combinations) and IAS 36 (Impairment test). Throughout this paper, the abbreviation "IFRS" is used to refer to both IFRS and IAS standards. In addition to these standards, the bedrock of this study is built on the prior literature and research regarding aforementioned topics in section 1.2.

The data for this paper are obtained from the Thomson Reuters Database comprising 4,230 firm-year observations. However, the data are modified as not all companies meet the variable requirements elaborated in section 5. Hence, the final sample comprises 899 firm-year observations spanning from 2005–2014. In the empirical part of this paper, the modified Jones model (Dechow *et al.* 1995) is first used to estimate the discretionary accruals. After this, the use of goodwill impairments to manipulate earnings – in general – is examined by using

multivariate ordinary least squares (OLS) regression model. Third, logistic regression model is used to examine whether the goodwill impairments are associated with big bath earnings management actions.

The findings of this paper provide evidence that goodwill impairments are not associated with accrual-based earnings management nor big bath actions in Finnish listed companies. The number of goodwill impairments has drastically decreased after the adoption of IFRS compared to prior years when goodwill was amortized on a straight-line basis. In regards to financial crisis, goodwill impairments during are not either associated with earnings management actions. One possible underlying factor affecting the results might be the principle of prudence, which is the main principle in Finnish reporting environment. In the estimation model, the only factors that seem to affect the earnings manipulation are firm size and value of total accruals. In addition to these, firm performance affects negatively big bath behavior.

1.4 The structure of the study

The structure of this study is as follows. In section 2, the concepts of goodwill under IFRS 3 and impairment test under IAS 36 are presented thoroughly. A thorough insight is rationalized in order to demonstrate the extent of discretion managers are permitted by IFRS. In section 3, the concept of earnings management, the detection of it, and its relation to goodwill impairments are explained. In section 4, prior literature regarding the goodwill impairments as a tool of earnings management is reviewed. The literature presented is not exhaustive, yet it is chosen because of its importance and close relation to the topic of this study. In section 5, the hypotheses of this paper are formulated. Prior to this, the special characteristics of Finnish reporting environment are presented. Even though the IFRS standards are the same internationally, the reporting environments differ from each other in different countries. Therefore, it is worthwhile to give an insight of main principles which prevail in Finnish reporting environment. In section 6, the data and research design are presented. Section 7 demonstrates the results of this paper, including the robustness tests. Finally, section 8 concludes with practical implications and future research suggestions.

2. GOODWILL AND THE IMPAIRMENT TEST

Goodwill accounting has been one of the most controversial issues in the history of modern accounting (Alves, 2013). The topic emerges especially in the accounting of business combinations to be used after mergers and acquisitions (Giner and Pardo, 2014). Especially, the initial recognition as well as measurement to the fair value subsequent to initial recognition have been debated by standard-setters (Shahwan, 2004). Over the years, there have been various accounting treatments of purchased goodwill as follows: immediate write-off against reserved, capitalization with amortization over a pre-selected number of years, and capitalization with annual impairment reviews (Hubenthal *et al.* 2002).

In this section, the concept of goodwill is depicted first. To give more thorough view of the topic, both prior research and standard-based literature are used. Second, the goodwill impairment test and its phases are elaborated. These topics are explained in accordance with IFRS as Finnish listed companies are stipulated to prepare their financial statements under IFRS regulation.

2.1 Goodwill as an asset

Goodwill arises in two different situations. First, it can be either internally generated, or second, it can be acquired as a part of the acquisition of another company (business combination). It is worthwhile to notice that goodwill appears in the financial statements only if an acquisition has occurred. In business combinations, goodwill is defined as the difference between the cost of the purchase and the fair value of the net assets. Internally generated goodwill, however, is not recognized. (Alves, 2013)

According to Johnson and Petrone (1998), some believe that goodwill should be recognized as an asset, while others, e.g. Gore and Zimmerman (2010) argue that it should not be. Johnson and Petrone (1998) infer that goodwill can be seen to arise from either of the following perspectives: a “top-down perspective”, which considers goodwill as being a component or subset of something larger, or a “bottom-up perspective”, in which goodwill can be seen in terms of the components making it up.

In the top-down perspective, goodwill may be viewed as a component of the acquirer’s investment in the acquiree, which is based on the acquirer’s expectations about future earnings

emerging from the acquiree and the business combination. Under this perspective, the issue is regarded in terms of whether the larger item – the investment – can be determined as an asset. If it can be, the components integral to it are defined as subsets of that larger asset and hence accounted for as assets. According to the bottom-up perspective, if the price paid by the acquirer exceeds the fair value of the net identifiable assets of the acquiree, other resources which – obviously – have value to the acquirer, were acquired. At the broadest, goodwill can be considered as the “purchase premium”. This implies the premium paid by the acquirer over the book value of the acquiree’s net assets. Goodwill can be seen comprising the following parts: 1) Excess of the fair values over the book values of the acquired entity’s recognized net assets, 2) fair values of other net assets which have not been recognized by the acquired entity, 3) fair value of the going concern element of the acquired entity’s existing business, 4) fair value of the expected synergies from combining the acquiring entity’s and acquired entity’s net assets and businesses, 5) overvaluation of the consideration paid by the acquiring entity; and 6) overpayment or underpayment by the acquiring entity. (Johnson and Petrone, 1998)

Component 1 cannot be recognized as an asset as it instead reflects gains not recognized by the acquiree on its net assets thus being part of those rather than part of goodwill. Component 2 are considered intangibles which may be separately identified and thereby recognized as individual assets rather than goodwill. Thus, components 1 and 2 both relate to the acquiree and are not notionally part of goodwill. Component 5 can be defined as a measurement error rather than asset, and component 6 represents a loss (or gain). Hence, components 5 and 6 are not part of goodwill. Component 3 may be regarded as pre-existing goodwill which was internally generated by the acquiree or acquired by it in a previous business combination, and may be referred to as “going-concern goodwill”. Going-concern goodwill is defined as the ability of an established business to earn a higher return on an organized collection of net assets than would be expected if those assets and liabilities were acquired separately. Component 4 would not exist without the combination as it results from the combination and thus might be regarded as “combination goodwill”. Thus, only components 3 and 4 can be regarded as goodwill, and may be referred to as “core goodwill”. (Johnson and Petrone, 1998) These components of goodwill are presented in figure 1.

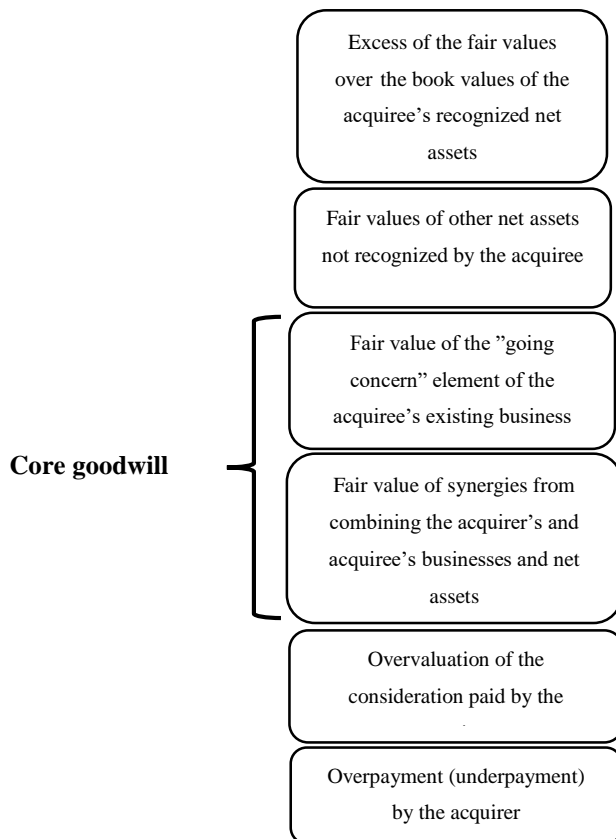


Figure 1. Components of goodwill (Johnson and Petrone, 1998)

Johnson and Petrone (1998) mention that there are three criteria set for goodwill to be qualified as an asset: 1) it bespeaks a probable future benefit involving a capacity to affect cash flows in the future, 2) it is possible for an entity to obtain the benefits and control it; and 3) the transaction that gives rise to an entity's right to or control of the benefits has occurred. IAS 38 definition of an intangible asset is in line with the above mentioned. However, according to Gore and Zimmerman (2010), an asset ought to be an identifiable resource and hence be something that exists independently. They conclude that synergy, for instance, is not something to be considered to have independent existence and hence ought not to be reported on the balance sheet.

2.2 Goodwill according to IFRS 3

The recognition of goodwill in financial statements is regulated by IFRS 3 (Business combinations) standard by International Accounting Standards Board (IASB). The first version

of IFRS 3 was issued in 2004, and the current revised version has been in use since January 2013.

The purpose of IFRS 3 standard is to enhance the reliability, relevance and comparability of information regarding business combinations and their effects. It covers the initial recognition and measurement of acquired assets and liabilities from the business combinations, as well as the determination of goodwill.

2.2.1 Business combinations

The first task in applying IFRS 3 is to determine whether a transaction is a business combination. According to the standard (IFRS 3.B7), the business combination must involve the acquisition of a business, that is, three elements must be fulfilled:

- 1) *Inputs* – an economic resource (e.g. non-current assets) that creates outputs when one or more processes are applied to it
- 2) *Process* – a system applied to an input creates an output (e.g. strategic management)
- 3) *Output* – inputs resulting from processes.

IFRS 3 also requires that the assets and liabilities acquired by the acquiring entity generate a business. In other words, the business could be practiced solely with the assets and liabilities acquired. If this criterion is not met, the acquirer must treat the transaction as an acquisition of assets.

2.2.2 Acquisition method

IFRS 3 requires the business combinations to be performed by using acquisition method. Many firms preferred the pooling method, arguably because of its more favorable effect on future earnings compared to the acquisition method (Dunne, 1990). IFRS 3 standard (IFRS 3.5) states that the acquisition method comprises the following steps: 1) Identification of the acquirer, 2) Determination of the acquisition date, 3) Recognition and measurement of the identifiable assets acquired, the liabilities assumed and any non-controlling interest, and 4) Recognition and measurement of goodwill or a gain from a bargain purchase. In this section, these steps are elaborated.

Identification of the acquirer

IFRS 10 *Consolidated Financial Statements* guides that the acquiring entity must be identified in a business combination. According to this, the acquiring entity is the one to obtain the control of the acquired entity (IFRS 3.7). An investor obtains control of an investee when it is exposed, or has right, to variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee (IFRS 10:5-6; IFRS 10:8). However, if it is not clearly indicated by IFRS 10 who the acquiring entity is, IFRS 3 suggests alternative guidance on the issue.

Determination of the acquisition date

IFRS 3 defines the acquisition date as the date when the acquiring entity obtains control of the acquired entity. In other words, the day when the acquirer assigns the payment, and acquires the assets and liabilities of the acquired entity.

Recognition and measurement of the identifiable assets acquired and liabilities assumed, and non-controlling interest

The acquisition method requires the acquiring entity to identify and measure assets and liabilities stemming from the business combination. These assets and liabilities shall be measured at the fair values of the acquisition date (IFRS 3.18). Fair value is used if the asset or liability has a quoted market price in an active market. As many firm-specific assets lack quoted market prices, these assets are valued by the management, which makes the write-downs of the assets vulnerable to managerial estimation (Rees *et al.* 1996). When calculating the possible impairment, it is subject to management's estimation, and hence might not be relied on (Bloom, 2009). Some studies (Jennings *et al.* 1996; Godfrey and Koh, 2001) document that management's valuation on intangible assets is beneficial as there are no material errors or biases. Assets and liabilities stemming from the business combination are recognized if, and only if, they meet IFRS 3's recognition principles on the acquisition date. These assets, however, shall not be the same as those recognized in the acquired entity's own financial statements. (IFRS 3)

IFRS 3 defines an asset and a liability as the following:

“Asset is a resource controlled by the entity as a result of past events and from which future economic benefits are expected to flow to the entity” (IFRS 3.11).

“Liability is a present obligation of the entity arising from past events, the settlement of which is expected to result in an outflow from the entity of resources embodying economic benefits” (IFRS 3.12).

According to IFRS 3, intangible assets are important to be identified separately as in the majority of cases their lives are finite, and amortization under IAS 38 *Intangible Assets* is required. Sacui and Szatmary (2015) state that intangible assets can be characterized as assets that are based mainly on information and knowledge. They also allude to the fact that intangible assets have no physical existence, and mainly they are hard to recognize due to which they ought to be subject to a structured identification process. Villalonga (2004) points out that the intangible asset which can be an advantage for the company is probably of different kind of nature in different sectors and industries. Under IFRS 3, intangible assets, which have been acquired in a business combination, shall be separately identified from goodwill if they 1) meet the general recognition principles of IFRS 3, and 2) are identifiable (IFRS 3. B31-B34). This supports the proposed view of Sacui and Szatmary (2015) indicating that a structured identification process ought to be taken into consideration.

Non-controlling interest emerges if an acquiring entity does not entirely own the equity in the acquired entity. Under IFRS 3, the non-controlling interest must be measured at fair value. If a quoted market price is available for the non-controlling interest, it shall be used as a fair value. Otherwise, the acquiring entity shall use other valuation methods to measure the non-controlling interest at fair value. (IFRS 3. B44)

Recognition and measurement of goodwill or gain from a bargain purchase

According to IFRS 3, the final step of acquisition cost method is to determine goodwill or a gain from a bargain purchase. Goodwill resulting from a business combination ought to be recognized on the acquiring entity's balance sheet whereas gain arising from bargain purchase shall be recorded through profit and loss statement (IFRS 3).

Goodwill is measured as following: 1) consideration paid by the acquiring firm, 2) the aggregation of non-controlling interests, 3) any previously held equity interests are measured at fair value, and aggregated, and 4) identifiable net assets of the acquired entity are deducted. This is illustrated in figure 2.

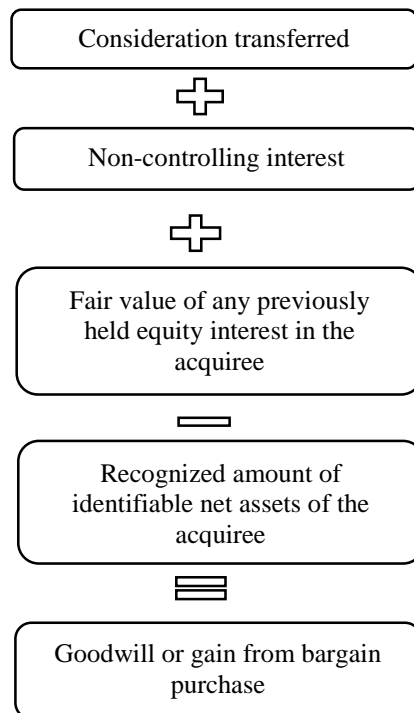


Figure 2. Recognition of goodwill under IFRS 3

2.3 The impairment test of goodwill according to IAS 36

Acquired goodwill must be dealt with in the accounting records of company. Over the years, there have been arguments whether it ought to be expensed immediately, amortized over a set number of years or subject to impairment tests. Over the years, all of the aforementioned have been mandatory in different accounting regimes, but currently it is subject to impairment test. This, however, gives management a lot of discretion. (Giner and Pardo, 2014)

2.3.1 Cash-generating unit

A cash generating unit (CGU) is defined as “the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets.” (IAS 36.6) When identifying a CGU, an entity must assess whether the group of assets generate largely independent cash flows, and whether there is an active market for the output:

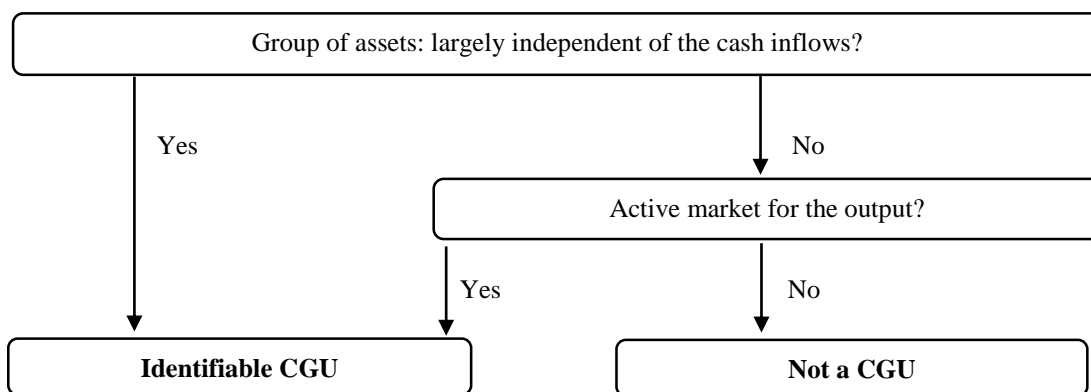


Figure 3. Identifying CGUs

In order to identify a CGU, the entity must be divided into different terms of components. As the definition of CGU derives from cash inflows, the component classification process ought to concentrate on the revenue sources of the entity, and how the assets of the entity contribute to revenue generation. Managers shall contemplate, for instance, how the operations of an entity are monitored or how the decisions regarding continuing or abolition of the operations and assets of an entity are made. However, there is no certain composition or nature of CGU as it varies from entity to entity, and is determined largely by entity specific factors. (IAS 36.69)

Allocating assets to the CGU

Following the identification of its CGUs, an entity shall determine which assets are included in certain CGUs. Before allocating an asset to the CGU, the entity must determine the recoverable amount for the assets. It is defined as the highest of (a) fair value less costs of disposal, and (b) value in use. According to IAS 36, only assets contributing to the cash flows of a CGU must be allocated to this certain CGU. However, IAS 36.6 defines *corporate assets* as assets – excluding goodwill – which are expected to generate future cash flows of all CGUs of the entity.

Allocating goodwill to the CGU

As goodwill does not directly contribute to cash flows, the recoverable amount of goodwill cannot be determined separately from other assets. However, goodwill does contribute to the cash flows in single CGUs or multiple CGUs. Therefore, goodwill shall be allocated to these single or groups of CGUs due to the test for impairment. (IAS 36.81)

IAS 36.80 requires that acquired goodwill shall be allocated to all of the acquiring entity's CGUs or multiple CGUs. These CGUs must, however, be expected to gain from the synergies emerging in the business combination. According to IAS 36.80, CGUs to which goodwill is to be allocated must

- a) Represent the lowest level within the entity at which the goodwill is monitored for internal management purposes; and
- b) Not be larger than an operating segment, as defined by IFRS 8.

In other words, this means that goodwill shall be allocated separately to CGUs that are no larger than individual operating segments before any operating segments are considered for aggregation for the purposes of the segmental disclosures.

Discretion regarding the CGUs

Creating a CGU for an entity gives lots of discretion for managers. Managers could avoid goodwill write-offs for many years, increasing the value of assets allocated to the CGUs to avoid impairments, and report a substantial loss in a year marked by particularly good performances. This method is called an income minimization method, which is elaborated in section 3. The strong heterogeneity of companies' structure and enormous sizes equipped with an ever wide range of intangible assets have decreed the increasing difficulty in measuring a reliable value of the CGU elements emerging from business combinations. Considering that the increase in the size of the CGU augments the difficulty in identifying its asset whereas its decrease becomes impossible to curb the effects of the expected benefits of goodwill, it is clear how this has significantly expanded the discretion of managers. (Caruso *et al.* 2016)

According to Caruso *et al.* (2016), IAS 36 has made an attempt to be helpful in solving the manager discretion problem by providing a lower and an upper limit in the configuration of the CGU, in relation to goodwill. Caruso *et al.* (2016) state that this is precisely the problem as managers can intervene here: after having to rely on reports and management plans generated by the internal control systems, managers are asked to give their opinion about the mechanism of aggregation of assets and about their attitude to generate cash flows independently.

The process of identification of the CGU requires extensive use of discretion by managers. As the identification of a CGU is the first step for impairment testing (and also the most important one in terms of significance), the managers can act with wide freedom right from the beginning in case they want to manipulate numbers for opportunistic purposes. (Caruso *et al.* 2016)

2.3.2 The phases and the timing of an impairment test

Phases of an impairment test

As it has been mentioned, in regards to an asset or a CGU, the recoverable amount is defined as the higher of its *fair value less costs of disposal* and its *value in use* (IAS 36.6). According to IAS 36, *fair value* is defined as the price received from the transaction or to pay a liability at the measurement date. *Costs of disposal* are defined as additional costs deriving from the disposal of an asset. However, these costs do not include income tax expenses or financial costs. In proportion, *value in use* is defined as the present value of the future cash flows contributed by an asset of a CGU. (IAS 36.6)

Following the calculation of the recoverable amount of an asset, the recoverable amount shall be compared to the carrying amount – book value – of an asset. According to IAS 36.97, if a CGU – formed by certain assets – to which the goodwill has been allocated is tested for possible impairment simultaneously with these certain assets, the assets are tested prior to the impairment test of the CGU. Similarly, if the goodwill has been allocated to a group of CGUs, and this group is subject to an impairment test simultaneously with the individual CGUs, the individual ones have to be tested prior to the group.

If the carrying amount of an asset exceeds the recoverable amount, this difference must be impaired through the profit and loss statement (IAS 36.59). In regards to a CGU, the similar difference has to be impaired if the carrying amount of a CGU exceeds the recoverable amount. If an impairment loss is recognized, it shall be first deducted from the carrying amount of goodwill (IAS 36.104). Subsequently, the rest of the impairment loss shall be allocated to the other assets of the CGU on a pro rata basis. However, it must be taken into account that – in regards to allocation of an impairment loss – it is not possible for an entity to decrease the carrying amount – book value – of an asset below the highest of 1) fair value less cost of disposal, 2) value in use; and 3) zero (IAS 36.105). In accordance with IAS 36, a reversal of a recognized impairment is not possible (IAS 36.124).

Timing of an impairment test

According to IAS 36, an entity shall perform an impairment test, and hence the recoverable amount of an asset shall be estimated. This is performed to discover any indication of an impairment at the end of each reporting period. (IAS 36.9) However, an impairment test must

be performed annually for certain assets even though there would not be any indication of an impairment. These certain assets are as follows:

- 1) Intangible assets with an indefinite useful life
- 2) Intangible assets not yet available for use; and
- 3) Goodwill acquired in a business combination. (IAS 36.10)

The indicator-based impairment testing applies also to these above mentioned intangible assets. In addition, if the asset was recognized initially during the current annual period, the intangible asset (or goodwill) ought to be subject to an impairment test before the end of that annual period (IAS 36.10). The aforementioned applies also if the allocated goodwill has been acquired in a business combination during that annual period (IAS 36.96). The annually performed impairment test can be performed anytime in that annual period. However, it must be noted that this test shall be performed at the same time annually (IAS 36.10, IAS 36.96). Notwithstanding this, it is possible to test assets for an impairment at different dates if these dates are consistent for each.

Dahmasha *et al.* (2009) state that the transition to impairment-based reporting regimes for goodwill has enhanced the relevance of financial information. Nonetheless, some researchers have disagreed with this view by rationalizing that testing goodwill for impairment is too intricate in nature and subject to management's assumptions in determining the parameters used in the process of testing for impairment (Harris and Caplan, 2002; Jahmani *et al.* 2010; Massoud and Rayborn, 2003; Mayorga and Sidhu, 2012). Moreover, Harris and Caplan (2002) suggest that the result of the annual impairment test is too widely affected by management's accounting choices under the new testing regime. In regards to goodwill impairment testing, the discretion provided to management may affect that the selection of the timing of the impairment test might be internally influenced (Ji, 2013). On the one hand, Ji (2013) states that management may conservatively accelerate goodwill impairment charges and report as extraordinary items. On the other hand, managers may 'roll the dice', that is, hoping to avoid goodwill impairment charges (Henning *et al.* 2004; Beatty and Weber, 2006; Ramanna and Watts, 2007). Although IFRS 3 requires managers to perform goodwill impairment tests annually, it gives management lots of discretion by requiring them to make manifold accounting choices (AbuGhazaleh *et al.* 2011)

3. EARNINGS MANAGEMENT

Earnings management is a relevant topic in financial accounting studies (Caruso *et al.* 2016). The phenomenon of intentional manipulation of financial reporting results has been widely studied from the early 1960s under the comprehensive label of earnings management theory (Beaver, 1968). Several studies (Francis *et al.* 1996; Hilton and O'Brien, 2009; Szczesny and Valentincic, 2013) show how a certain degree of discretion related to asset valuation has been widely adopted to reach earnings levels otherwise unreachable. Among such assets, goodwill proves to determine substantial impact on investment profits and share value (Shalev *et al.* 2010).

In this section, the concept of earnings management is elaborated. This is done by defining earnings management, illustrating the incentives of earnings management, and depicting the methods of detecting earnings management. Moreover, an insight of how goodwill impairments are related to earnings management actions is given.

3.1 Definition of earnings management

An interesting contribution on a framework for earnings management research is the work of Ronen and Yaari (2008), in which the various forms of earnings management can be traced to three main categories (black, grey, and white earnings management, in descending order of manipulation), based on the aims of the CEO. They define white earnings management as exploiting the discretion regarding the accounting choices to convey management's private information on future cash flows. Accordingly, if the accounting choice is selected on the basis of opportunistic behavior, that is, maximizing the utility of management, this is defined as gray earnings management. Finally, if management uses different kinds of manoeuvres to misrepresent financial information, or deliberately prevents the users of financial statements from obtaining transparent information, this is defined as black earnings management.

Scott (2009: 403) states that earnings management can be seen as an accounting choice by management to affect earnings. Especially, if these accounting choices are practiced to reach an earnings objective set in advance by management, this is defined as earnings management. On the other hand, if managers deliberately do not convey the true earnings-based information which increases the shareholder value, this is also seen as earnings management (Scott, 2009: 403). According to Stolowy and Breton (2004), earnings management is defined as

manipulating accounts. In this sense, managers are given the discretion to make decisions regarding accounting policy or transactions which enable the transfer of wealth between firm and society, fund providers or management. One of the most commonly used definition for earnings management is proposed by Healy and Wahlen (1999):

“Earnings management occurs when managers use judgement in financial reporting and in structuring transactions to alert financial reports to either mislead some stakeholder about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.” (Emphasis added)

According to their view, managers abuse their judgement in communicating the economic and financial situation of the company deliberately to deceive stakeholders about the real economic performance. This indicates that managers might act in a purely opportunistic way.

Notwithstanding more than a number of scientific contributions, there is, however, no such definition for earnings management that would have reached consensus among researchers. This might be related to the different forms of manipulation of information and accounting values that can be realized in the process of elaboration of financial reporting of a firm. Due to its elusive concept, it is difficult to share a unique, universal definition. (Caruso *et al.* 2016) Earnings management can create information asymmetry between management and investors by making it difficult for financial statement users to accurately assess firm financial performance, even though effective reporting regulatory environments help limit this behavior (Evans *et al.* 2015).

3.2 Incentives for earnings management

According to Watts (1977), individuals maximize their own self-interests for which the financial statements serve as an equilibrium. Undeniably, earnings management is practiced due to the misalignment of incentives between management and users of financial statements. Obviously, management is likely to act in its own self-interest at the expense of the users of financial statements. However, as shareholders strive for, on the one hand, maximizing the firm value, and optimal contracting on the other hand, they have both external and internal demand for earnings management (Dye, 1988).

The incentives of earnings management are typically enumerated as the following: 1) valuation incentives, 2) contractual incentives, and 3) regulatory incentives (Healy and Wahlen, 1999; Fields *et al.* 2001). Gordon (1964) investigates the relationship between stock prices and accounting policy focusing on valuation incentives. Subsequently, Watts and Zimmerman

(1978) developed positive accounting theory, which introduced both contractual and regulatory incentives into the field of earnings management.

3.2.1 Valuation incentives

The most important group to use financial statements is arguably investors (Barth *et al.* 2001). Thus, it is presumable that managers practice earnings manipulation to affect the firm value. Earnings management actions prior to initial public offerings (IPOs) were examined – among the first – by Aharony *et al.* (1993). Even though this study finds no evidence of earnings management, subsequent study documents upwards earnings manipulation by using income-increasing accruals (Friedlan, 1994) and by selecting appropriate accounting policies regarding depreciation method and inventory valuation (Neill *et al.* 1995). Moreover, Teoh *et al.* (1998) document similar evidence and, in addition, they find that post-IPO earnings are negatively associated with earnings management.

According to Storå (2013), if the purchase price is paid in shares, acquirers are more likely to manipulate earnings upwards in connection with takeovers since the higher the share price, the more the acquiring cost will be decreased as the amount of shares which are transferred to pay the purchase price is decreased. Erickson and Wang (1999) confirm this as they find that acquiring companies are engaged in upwards earnings manipulation actions prior to stock-for-stock mergers. Furthermore, Christie and Zimmerman (1994) find that firms being the targets of takeovers manage earnings upwards prior to the takeover.

Earnings management actions have been exercised prior to management buyouts (MBOs) as well. For instance, managers considering an MBO are likely – or at least, they have an incentive – to engage in upwards earnings management actions as they strive for reducing the value of the company (Storå, 2013). DeAngelo (1986) examines earnings management prior to MBOs but finds no evidence on earnings manipulation. On the contrary, Perry and Williams (1994) and Wright *et al.* (2006) document that management manage earnings downwards prior to MBOs.

3.2.2 Contractual incentives

It is general that some terms of contracts depend on the accounting figures. These kinds of contracts are used to motivate the management, for example. The bonus plan hypothesis (Healy, 1985; Watts and Zimmerman, 1986: 208) illustrates the idea of managers practicing earnings manipulation to enhance their compensation if the compensation is contingent on accounting

figures. This would obviously motivate the management to upward the numbers to reach certain thresholds. Healy (1985) reports evidence supporting the bonus plan hypothesis. According to his study, firms manage earnings upwards if the earnings are between the lower and upper bound, indicating that managers were paid higher bonus payments. Moreover, Healy (1985) also finds that firms manage earnings downwards if the upper bound target is beaten, or if the lower bound seems to be unreachable. Holthausen *et al.* (1995) document that firms engage in earnings-reducing earnings management actions only if the upper bound is beaten.

In addition to bonus plan hypothesis, some debt contracts are also contingent on accounting figures (Storå, 2013). According to the debt covenant hypothesis, managers are likely to manage earnings if the debt covenants are likely to be violated (Watts and Zimmerman, 1986: 216). Beneish and Press (1993), and Dichev and Skinner (2002) find evidence consistent with debt covenant hypothesis.

3.2.3 Regulatory incentives

The political cost hypothesis (Watts and Zimmerman, 1986: 235) illustrates the idea of firms practicing earnings manipulation if a firm can avoid different kinds of regulation costs stemming from political process. This means that firms which are exposed to publicity or the surveillance of authorities, are most likely engaged in earnings management. Moyer (1990) documents that banks manage earnings to meet capital adequacy requirements. Boynton *et al.* (1992) find that earnings management actions are associated with taxation, as firms manage earnings downwards to reduce the tax burden.

3.3 Methods for earnings management

Earnings comprise the cash flows and accruals during an accounting period. Given this, earnings can be manipulated through the cash flows or accruals. (Storå, 2013) Ewert and Wagenhofer (2005) bisect the earnings management actions into *real activities management* and *accounting earnings management* based on whether the earnings are manipulated through cash flows or accruals respectively.

3.3.1 Real activities management

According to real activities management, the purpose is to diverge from the normal operational practices as management strives for misleading – at least some – stakeholders to believe that certain financial reporting targets are met (Roychowdhury, 2006). Ewert and Wagenhofer

(2005) define real activities management as a purpose of diverging from the optimal plan of actions to deliberately influence only earnings.

By engaging in real activities management, managers make choices potentially harmful to the interests of the same company in the medium to long term. There is indeed a tendency of the managers to pay more attention on short-term results, because they are signal of a good management and because the related positive results can increase the estimate of stakeholders – primary shareholders – with respect to manager themselves. REM can directly modify annual income through actions that affect mainly the registration of costs and revenues or it can focus directly on financial statement. (Caruso *et al.* 2016)

Prior literature regarding real activities management concentrates on R&D spending. For instance, Dechow and Sloan (1991) find that CEOs decrease the firm's R&D spending right before the end of the tenure to enhance earnings performance in the short-run. Baber *et al.* (1991) find that firms cut down R&D expenses to meet the earnings targets. Also, firms repurchase stock options to avoid the dilution of earnings per share (Bens *et al.* 2003). What is most interesting from this study's point of view, is that firms structure business combinations so that pooling method could be selected. In practice, by applying the pooling method, firms avoid the goodwill recognition and impairments as well. (Aboody *et al.* 2000; Ayers *et al.* 2002)

3.3.2 Accounting earnings management

According to Storå (2013), accounting earnings management is regarded as a way to treat business transactions. In regards to this, accounting earnings management can be subdivided into two groups based on whether firm practices earnings management by selecting an appropriate accounting policy, or by manipulating earnings through accruals. Choosing an appropriate accounting policy influences accruals indirectly while manipulating accruals implies direct use of discretion. Clearly, goodwill impairments as a part of earnings manipulation can be regarded as accrual-based earnings management. Given this rationale, this paper focuses on accounting earnings management.

Previous studies find that firms intend to manipulate earnings by selecting appropriate accounting policies, for instance, inventory valuation and depreciation methods (Neill *et al.* 1995). Regarding accrual-based earnings manipulation, prior studies also find that earnings are managed due to provisions for bad debt (McNichols and Wilson, 1988), through sales and

operating expenses (Plummer and Mest, 2001) and asset write-downs (Strong and Meyer, 1987; Riedl, 2004).

As Caruso *et al.* (2016) reports, accounting earnings management allows directors to use opportunistically the direction granted for the determination of accounting values subject to estimates and assumptions. They divide accounting numbers included in financial reporting into objective and subjective ones. While the first cannot be distorted going forward in time, the latter contain estimated values and assumptions, and therefore may be subject to change over time. They distinguish four types of accrual-based practices:

- 1) income smoothing;
- 2) income maximization;
- 3) income minimization; and
- 4) big bath accounting.

Regarding income smoothing, Milgrom and Roberts (1992) state that high levels of performance in a given period may create expectations of an equivalent or even greater future growth, bending to the so called trail effect. Caruso *et al.* (2016) suggest to avoid a future penalty by postponing revenues to the future, less fortunate years. Income smoothing policies, therefore, have the objective of standardizing the growth maintaining levels slightly above the obtained in the previous year (Caruso *et al.* 2016). Lhaopadchan (2010) finds that if firms are facing a combination of uncertainty and discretion granted for the management, the decisions to impair asset seem to be related to income smoothing.

Income maximization policies provide the anticipation of the revenue and the deferral costs, with the only goal to maximize the possible income for the current year. This technique makes sense only if there are strong incentives and only under certain conditions: the chance of breaking a debt covenant or, where appropriate, the expectations of shareholders or analysts; another case in which it might be appropriate is in case of extraordinary operations, most notably mergers. (Caruso *et al.* 2016)

In income minimization, the aim is to minimize the profit for the year, in line with the expectations of analysts and investors, in order to reduce it if it is too high compared to the target previously set (Beneish, 2001). This method allows the deferral of current income to a period of low profitability. Beneish (2001) mentions, however, that some advantage may result from these operations, such as lower taxes due to lower income. This is something Guenther (1994) investigates. He finds out that current accruals, which are defined as those types of

accruals that affect taxable income (Manzon, 1992; Choi *et al.* 1991), are positively related to debt levels but are not related to high level of manager ownership.

Finally, following the definition given by Healy (1985), management might reduce the earnings by accelerating write-downs if it is obvious that – despite the accounting policy – earnings target will not be met. This is referred to as *taking a bath*. In this sense, managers tend to worsen the situation if the targets set by analysts and investors cannot be reached. Given that expectations will not, in any event, be honored, managers will have an incentive to “sacrifice a year” to get a better position in the next ones. The reason behind this is that the market punishes with a meter less severe an additional loss in a situation already below expectations (Jordan and Clark, 2004). Kirschenheiter and Melumad (2002) suggest that these practices – sometimes criticized by regulators – may be the natural responses on the part of a manager wishing to maximize the value of his company.

The wide level of discretion associated with accrual makes it a potential choice for earnings management. It has also been proved that if managers are given lots of discretion, and the degree of verifiability is low, managers are more likely to practice accrual-based earnings management actions (Storå, 2013). Watts (2003) discovers that goodwill impairments are an item which is particularly prone to discretion, and lacks verifiability, due to which it can be used to manipulate earnings.

3.4 Detecting earnings management

It might be difficult for the management to identify earning management with certainty without knowing its true intentions. Hence, earnings management is criticized as it can simply occur due to a missing variable. Moreover, any other behavior might be regarded as earnings manipulation by mistake. (Gunny, 2005) Burgstahler and Dichev (1997) find unexpectedly lots of minor (positive) earnings surprises and changes in earnings, which can be regarded as earnings manipulation actions to reach the thresholds set by investors and analysts. Other earnings management related studies have been inspired by these findings as these variables are commonly used to detect earnings management. As this paper focuses on accounting earnings management, different kinds of measures of discretionary accruals– that currently are state of art – are briefly depicted. Accruals are regarded as the difference between net earnings and cash flows.

Healy model

According to Healy (1985), there is always systematic earnings management. Earnings manipulation is detected as the mean of the total accruals (TA_{it}) – used as a proxy for non-discretionary accruals – scaled by the lagged total assets (A_{it-1}). As a proxy for non-discretionary accruals, the mean of the total accruals is used in this model. Given these, it is assumed that the total accruals deviating from zero are a sign of earnings manipulation.

$$DA_{it} = \frac{TA_{it}}{A_{it-1}} \quad (1)$$

The DeAngelo model

DeAngelo (1986) assumes the difference between total accruals (TA_{it}) and lagged total accruals (TA_{it-1}) to be proxy for non-discretionary accruals. Given this, the discretionary accruals (DA_{it}) is regarded as the non-discretionary accruals scaled by lagged total assets (A_{it-1}).

$$DA_{it} = \frac{(TA_{it} - TA_{it-1})}{A_{it-1}} \quad (2)$$

The Jones model

Jones (1991) model assumes that changes in revenues cause changes in operating capital, thus causing a change in accruals as well. Gross property, plant and equipment (PPE_{it}) are included to control portion of total accruals related to non-discretionary depreciations. The Jones model is formulated as follows:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_i \frac{1}{A_{it-1}} + \beta_1 \frac{\Delta REV_{it}}{A_{it-1}} + \beta_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \quad (3)$$

Modified Jones model

The modified Jones model was developed by Dechow *et al.* (1995) by adding one more item, that is, change in receivables, to calculate discretionary accruals. Thus, the modified Jones model is as follows:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_1 \frac{1}{A_{it-1}} + \beta_1 \frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{it-1}} + \beta_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \quad (4)$$

3.5 Earnings management and goodwill

Lots of studies find an association between earnings management and goodwill impairments (Miller and Shamsie, 2001; Gaines-Ross, 2002). For instance, Sevin and Schroeder (2005) find that firms, which impair goodwill in certain year, have substantially lower firm performance (ROA) compared to those which do not impair goodwill. Thereby, this provides evidence on big bath actions. As it turns out, goodwill impairment seems to be one the most important tools of earnings management (Caruso *et al.* 2016). The accounting literature of goodwill write-off is very wide and it often analyzes matters not deeply related to their root cause (Li *et al.* 2011; Hayn and Hughes, 2006; Francis *et al.* 1996; Anantharaman, 2007; Beatty and Weber, 2006). Instead, Gu and Lev (2011) give an important contribution to the debate by tracing goodwill write-offs all the way back to their root cause and by investigating the economic implications of goodwill impairment.

According to Lhaopadchan (2010), the permanence of a goodwill impairment creates incentives for managers to postpone a goodwill impairment as this decline is reflected to the profits of that accounting period. Moreover, he adverts to that the incentives of management are the biggest factor to affect the write-off decisions. Dechow and Ge (2006) discover that management's decision to impair goodwill is influenced by two motivations. First, management is willing to turn the firm around, and second, management wants to reorganize the company. Riedl (2004) and Henning *et al.* (2004) discover that due to the increase in discretion granted to managers regarding the timing of write-downs, managers can easily rationalize the reporting decisions as the standards permit this. Thus, a substantial problem exists due to the fact that standards give discretion to managers implying that earnings management actions are more likely to be engaged in (Healy and Wahlen, 1999; Nelson *et al.* 2002).

The potential correlation between goodwill impairment and earnings management practices is justified by the fact that, as demonstrated by the application of IAS 36 in the previous section, there is considerable scope for discretion. This is more visible in absence of reliable information and in the process of valuing assets which are, by no means homogenous. In addition, other factors that increase the possibility of earnings management are: (a) the strong information asymmetry between management on the one hand, and shareholders and stakeholders on the other, and (b) the great discretion granted to managers, together with the fact that goodwill cannot be independently valued using fair value or value in use. Because of its ability to produce effect – constant but variable over time – on accounting numbers, impairment test may result in significant volatility in the results. Due to the aforementioned reasons, goodwill impairment is a candidate to be the main tool for managers to affect accounting year-end valuations. (Caruso *et al.* 2016)

4. PRIOR RESEARCH

Since 2005, many countries have been obliged to adopt the IFRS issued by the International Accounting Standards Board (IASB). IASB states that one of its main objectives is to enhance the transparency and comparability regarding financial reporting cross-nationally. As IFRS consists of financial reporting standards of high quality, it is considered to mitigate the discretion given to managers, and hence limit earnings management actions (Cai *et al.* 2008). On the other hand, it must be taken into consideration that IFRS standards permit a lot of discretion for managers regarding the goodwill. This is due to the fact that the management has the best knowledge of the financial position of the company. For instance, managers are given discretion when determining the CGUs. Moreover, fair values of certain assets are determined by the management. FASB states that the purpose of SFAS 142 is to enhance the value of goodwill in balance sheet, and hence provide the users of financial statements more relevant information and underlying assumptions regarding the changes in an entity's assets over time. Given these, the purposes of the IFRS and SFAS are very similar.

As it has been stated earlier, goodwill accounting – including goodwill impairments – has been under review for a substantial period of time. In this section, prior literature regarding the goodwill impairments as a tool of earnings management actions is depicted. However, it must be taken into account that the literature presented in this paper is not comprehensive yet it represents the studies that are the most interesting and relevant regarding the topic of this paper. Given this, the prior literature focuses on goodwill impairments used in earnings management actions, and the timeliness of goodwill impairments. The decision-making regarding the timing of a goodwill impairment gives lots of discretion for the managers under IFRS 3, IAS 36, and SFAS 142 as it has been mentioned earlier. This gives rise to assume that goodwill impairments can be used to manage earnings. Therefore, it is essential to represent prior literature regarding both the appropriate timing of goodwill impairments and goodwill impairments as a vehicle to manage earnings. Given the similarities between IFRS and SFAS, prior research under both IFRS and SFAS are included. First, the literature regarding the goodwill impairments as a tool of earnings management is presented. Second, an overview of literature related to timeliness of goodwill impairments is given. Even though this paper does not directly examine the timeliness of goodwill impairments in Finnish listed companies, it is important to include the literature in question as certain earnings management actions are directly related to the timeliness of

goodwill impairments. Given these, the prior literature has been selected so that it best serves the purpose of this paper.

4.1 Goodwill impairments and earnings management actions

As the discretion regarding the goodwill impairments has been subject to significant attention after the adoption of IFRS standards, AbuGhazaleh *et al.* (2011) examine this phenomenon in U.K. listed companies during years 2005–2006, having the total sample comprising 528 firm-year observations. They examine, after the mandatory adoption of IFRS, whether management utilizes the discretion permitted by IFRS in regards to a decision to impair goodwill, and whether opportunistic reporting is reflected to this discretion. They control economic factors such as CEO change, the independency of board of directors, and ownership. As a result, they find that the management's ability to report goodwill impairments are restricted by effective governance mechanisms. Thus, they find that IFRS 3 has enhanced the quality of goodwill impairments supporting the IASB's contention that IFRS 3 does allow companies to reflect their underlying economic attributes.

André *et al.* (2015) examine whether the adoption of IFRS has affected conditional conservatism. Conditional conservatism is defined as “the asymmetric recognition of gains and losses in earnings, and the value relevance of accounting earnings, measured as the ability of accounting earnings to summarize information impounded in market prices” (Brown *et al.* 2006). Given this, conditional conservatism can be regarded as a requirement for firms to more sensitively report the bad news than good news. According to Watts (2003), conditional conservatism has become a more qualitative characteristic in financial reporting. However, as IFRS 3 allows lots of discretion to managers, financial reporting has not reached the level of quality IASB has intended (André *et al.* 2015). They examine 13,711 firm-year observations spanning from 2000–2010 in European firms (including Finland as well) – which adopted IFRS in 2005 – to review the pre and post levels of conditional conservatism. As two major crises (Internet bubble in the early 2000s and financial crisis 2008–2009) occurred during this period, it offers an eminently interesting field to examine the effect of asset impairments on conditional conservatism. André *et al.* (2015) document that the level of conditional conservatism has declined after the adoption of IFRS. Moreover, they allude to that this is presumably associated with the recognition and avoidance of asset impairment. According to André *et al.* (2015), the decline in the level of conditional conservatism is less likely to occur in firm which recognize asset impairments, and more likely to occur in firm which do not recognize an impairment even

though they ought to. Inappropriate enforcement of impairment tests and postponed impairments permit management to delay the bad news recognition regarding earnings thus reducing the level of conditional conservatism.

Davis (2006) examines whether the impairment test of goodwill has improved the value relevance of goodwill accounting under SFAS. He represents two major, but opposing, problems regarding the SFAS 121 and SFAS 142 standards. First, forcing to amortize goodwill when firms, due to active and successful management, are actually enhancing the value of goodwill. Second, firms experiencing a substantial decline in goodwill might pursue hiding the decline by simply underestimating the real expense by recording the minimum amortization. The sample comprises 1,979 firm-year observations between years 1995–2002. Davis (2006) finds that companies were operating primarily under the rules in effect at the time (using both SFAS 121 and transitional SFAS 142) of the impairment measurement loss implying that they are not trying to game the system nor take a big bath. He concludes that even though firms are not appearing to use the new rules to their advantage, the sheer amount of write-downs ought to serve as an alarm that many managements either pay too much for their expansion or are unable to successfully integrate the target firm to acquiring one.

Bisogno (2015) examines whether Italian listed companies manipulate earnings through goodwill accounting. His sample consists of 591 firm-year observations spanning from 2011–2013, and modified Jones model is used to estimate the discretionary accruals. The results show that goodwill yearly changes are positively related to discretionary accruals supporting the assumption that IFRS 3 and IAS 36 provide managers wide discretion for both defining goodwill value as well as for the amount of goodwill subject to be written down. Accordingly, Bisogno (2015) suggests that IFRS 3 and, especially, IAS 36 induce managers to manipulate earnings. Furthermore, he also suggests that goodwill impairments offer earnings management opportunities, even though this accounting treatment (IAS 36) has been considered as a tool for reducing manager's discretion by replacing the annual amortization. Alves (2013) investigates whether Portuguese listed firms use goodwill impairments to manage earnings. She uses both Jones (1991) and modified Jones model for the discretionary accruals, and – in addition to Bisogno's (2015) research – she examines the effect of board size and auditor on the use of goodwill accounting to manage earnings. The sample comprises 198 firm-year observations during the years 2005–2010. Alves (2013) finds that goodwill impairments are significantly positively related to earnings management, suggesting that IAS 36 provides too wide discretion for managers regarding the goodwill write-offs. Moreover, she documents that having a

relatively bigger board and high cash flows decreases the earnings management actions whereas high leverage and political costs imply more earnings management actions. Haman and Jubb (2007) provide same kind of an examination on Australian firms. Using total sample of 343 goodwill firms, their findings suggest that managers of goodwill firm use the opportunity of the adoption of IAS 36 to increase firm's earnings by upwardly managing earnings using discretionary accruals and/or by lowering goodwill impairment losses.

Earnings are defined as high-quality if they "provide(s) more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision-maker" (Dechow *et al.* 2010). Giacomino and Akers (2009) examine the effects of goodwill write-downs under SFAS 142 on earnings quality in 2008 and 2009. Prior to the research, they examined hundreds of financial statements, and discovered that most of these companies' balance sheets (relative to total assets) have a substantial amount of goodwill. Moreover, the income statements of these companies reveal that goodwill impairments were somewhat frequent. Because of these results, further study on goodwill and goodwill impairments is thus needed. The sample of the study comprises Fortune 100 companies of which 10 had to be dismissed due to the lack of data available. However, 10 companies – in order of size – were added to get 100 companies. They calculate different kinds of ratios, such as the amount of goodwill to total assets, and the amount of goodwill to net income. Based on these ratios, they find that goodwill write-downs have augmented during 2008, and are likely to continue increasing into 2009. Furthermore, Giacomino and Akers (2009) allude to that since these companies have significant amounts of goodwill on their balance sheet at the end of fiscal year 2008, they are prone to big bath earnings management due to the uncertainty regarding the economy and the financial markets.

Beatty and Weber (2006) find out whether the adoption of SFAS 142 has urged companies to impair goodwill under the line. Moreover, they have some economic incentives under review, which firms might encounter by selecting the accounting choice related to SFAS 142. According to them, the factors affecting the delay or acceleration of the impairment recognition are firm's debt contracting, bonus, turnover, and exchange delisting incentives. They examine whether these factors affect the management's decision to recognize the goodwill impairments above-the-line or below-the-line. "The line" refers to gross profit implying that those goodwill impairments could be recognized either to affect or not to affect the gross profit. In 2001 when SFAS 142 was adopted, both of these accounting treatments were allowed. SFAS 142 has permitted lots of discretion to managers regarding the accounting policy. First, management

may accelerate impairments to reach the “below-the line”. Second, management may postpone the impairment recognition with a hope of never having to recognize impairments. The sample data consists of 553 companies of which 232 recognize goodwill impairments. Beatty and Weber (2006) document that it is more probable for firms to impair goodwill if the firms gave greater net worth covenant slack and the covenant is affected by change in the accounting policy. In other words, when contracts include the effects of accounting changes, managers facing more binding contract are likely to postpone expense recognition. They also find that firms with earnings-contingent bonus systems are more likely to delay the recognition of goodwill impairments. These observations are consistent with the contractual incentives depicted in section 3.2.2. CEO tenures also seem to affect the impairment recognition decisions as firms having relatively longer tenures are less likely to recognize goodwill impairments. Furthermore, the companies with the goodwill impairment recognition leading to exchange delisting are more likely to delay the impairment recognition. On the other hand, companies facing high risks accelerate the goodwill impairment recognition. Condensed, it can be stated based on the study of Beatty and Weber (2006) that managerial incentives affected opportunistic way the recognition of goodwill during the transition of SFAS 142.

Also the tenure of the CEO has been under examination regarding the goodwill impairments. Masters-Stout *et al.* (2008) examine what kind of an effect the tenure of CEOs in listed companies has on the decisions regarding goodwill write-downs as evidence supports the view that CEOs practice earnings management (Wells, 2002). Masters-Stout *et al.* (2008) uses OLS regression analysis on a sample of 990 firm-year observations of Fortune 500 companies during the years 2003–2005. They find that new CEOs are more likely to impair goodwill than senior CEOs. They allude to that new CEOs interpret the accounting rules differently implying that goodwill impairments might open a whole new window for earnings manipulation. Masters-Stout *et al.* (2008) suggest that in order to assure the consistent application of the standard, the standard setters ought to focus the direction more on the valuation of goodwill impairment.

Storå (2013) examines whether incentives regarding earnings targets are related to using goodwill impairments to manage earnings in IFRS-applying companies. The sample of the study comprises 2,743 firm-year observations spanning from 2005–2010. This sample consists of firms that apply IFRS, have reported goodwill on their balance sheets, and have recorded goodwill impairment during the year. Moreover, all financial institutions and public administration entities are excluded from the sample. He uses regression analysis in two perspectives: upwards earnings management, and downwards earnings management. Storå

(2013) finds that firms avoid goodwill impairments because of which they would not reach earnings targets. He ponders whether the regulation ought to be changed due to the earnings manipulation. Furthermore, he even suggests returning to the prior straight-line amortization method as this would decrease the discretion regarding the goodwill impairments.

Henning *et al.* (2004) examine the criticism towards U.S. GAAP that it would have permitted too wide discretion in regards to determining the timing and amount of goodwill write-downs. The sample of the study consists of both U.S. and U.K. firms with 1,576 and 563 firm-year observations respectively. The results demonstrate that, before SFAS 142, firms managed strategically the amount of goodwill write-downs. Moreover, they find that firms in the U.S. delay goodwill write-downs thus avoiding the income-reducing effects, and firms in the U.K. manage the timing of goodwill impairments to avoid agency costs. Their results also suggest that SFAS 142 mandating annual impairments tests is likely to decrease the firms' ability to delay goodwill write-offs.

There are also studies which focus on big bath earnings management as it has been discussed in section 3. Big bath refers to actions in which there is a tendency to worsen the current situation if it is not possible to reach the target set by analysts/investors. Given that expectations will not, in any event, be honored, managers will have an incentive to "sacrifice a year" to get a better position in the next ones. According to Jordan and Clark (2004), market punishes with a meter less severe and additional loss in a situation already below expectations. They examine Fortune 100 companies during the years 2001–2002 (the adoption of SFAS 142) and find that firms practice big bath earnings management in the adoption year of SFAS 142.

Sevin and Schroeder (2005) investigate whether the provisions of SFAS 142 permit the big bath earnings management actions, and whether firm size is associated with earnings management. The sample of the study comprises 202 companies of which 120 reported goodwill impairments in 2002. These companies were classified into two groups according to total assets. Sevin and Schroeder (2005) find that, in 2002, sample firms wrote off a substantial amount of goodwill reported on balance sheet in 2001. Large companies recognized a goodwill impairment of 27 percent of 2001 goodwill, whereas small firms recognized an impairment of 73 percent of 2001 goodwill. This suggests that smaller companies might have been disproportionately impacted by the implementation of SFAS 142. Thus, substantially greater proportion of small firms reported negative earnings in the year of adopting SFAS 142, as opposed to the prior year, but there was no significant difference between the year-to-year proportions of large firms reporting

negative earnings. These results suggest that the negative effect of reporting – following the adoption of SFAS 142 – was utilized by relatively smaller companies with a strive for engaging in big bath behavior.

Riedl (2004) examines the effect of SFAS 121, that is, *Accounting for the Impairment of Long-Lived Assets*, on the characteristics of reported asset write-offs pre and post SFAS 121 implementation. The sample consists of 2,754 firm-year observations spanning from 1992–1998, and financial institutions were excluded. The results show that the underlying economics of the firm have a weaker mapping into write-offs reported under SFAS 121. Furthermore, the results indicate that managers are using greater flexibility after the adoption of SFAS 121 than before. This indicates that managers act more in a way of big bath actions. However, one must take into account that there could be two reasons for this. First, managers might be distorting the underlying economic factors their company is facing, and thus reporting opportunistically. Second, managers may be using more flexibility in an attempt to overcome some deficiency in the reporting of write-downs under SFAS by providing a signal that reflects the firm performance in a more meaningful manner.

Also the analysts' and auditors' perceptions as well as the effect of audit quality has been taken into account in goodwill impairment studies related to earnings management. Saastamoinen *et al.* (2013) explore the perceptions of financial analysts on the accounting for goodwill in accordance with IFRS. The sample consists of a questionnaire sent to financial analysts in Nordic countries and in Austria in October 2012 – March 2013. In overall, the sample comprises 95 respondents from the analysts. According to the results, analysts expect management to carefully consider the impairment decisions. Over a half of the analysts shares the view that goodwill accounting under IFRS enables earnings management actions. Moreover, almost a half of the analysts think that these rules actually lead to increased earnings management. Almost three quarters of the analysts believes that companies are avoiding goodwill impairment recognitions. The results indicate two kinds of perceptions: first, analysts think that goodwill impairment decisions are driven by managerial discretion and opportunism. The second line of thought states that IFRS regulation enhances financial information about goodwill.

Saastamoinen and Pajunen (2013) explore auditors' perceptions of goodwill accounting under IFRS. The study is conducted by sending a survey to 523 KHT-certified (CPA) Finnish auditors yielding an amount of responses of 123. Based on the results, it seems that more experienced auditors who have audited publicly quoted companies share the view that goodwill impairments

are not recognized although they should be. The auditors with a recently received KHT (CPA) degree believe that management compensation plan affects the decision to impair goodwill. According to the results, on the one hand, auditors believe that managers act opportunistically regarding the decisions to impair goodwill. On the other hand, Big 4 auditors favor goodwill accounting under IFRS. All of these prior research related to goodwill impairments as a tool of earnings management are presented in table 1.

Table 1. Prior research on goodwill impairments as a tool of earnings management

Researchers	Publication and year	Research question	Data used	Results
AbuGhazaleh, N.M, Al-Hares, O.M. & Roberts, C.	Journal of International Financial Management & Accounting, 2011	Do managers use discretion regarding goodwill impairments after the mandatory adoption of IFRS 3, and is this reflected to opportunistic reporting?	528 firm-year observations in U.K. listed firms during 2005–2006.	Managers use discretion when determining goodwill impairments. However, results suggest that managers use discretion to convey their expectations and private information. Accordingly, managers do not act opportunistically.
Alves, S.	Journal of Accounting, Business & Management, 2013	Are goodwill impairments used to manipulate earnings?	33 Portuguese publicly quoted firms during the years 2005–2010.	Goodwill impairments are used to manipulate earnings. First, earnings management is less likely to occur when board size is large and cash flows high. Second, earnings are manipulated more when the firm is large and more indebted.
André, P., Filip, A. & Paugam, L.	Journal of Business Finance & Accounting, 2015	The effect of impairment recognition and avoidance on the level of unconditional conservatism after the adoption of IFRS.	A sample of 16 European firms comprising 13,711 firm-year observations spanning from 2000–2008.	The decrease in unconditional conservatism is related to asset impairment recognition and avoidance. This decrease is less likely for firms that recognize an asset impairment and more likely for firms that do not book an asset impairment.
Beatty, A. & Weber, J.	Journal of Accounting Research, 2006	Factors affecting above-the-line and below-the-line goodwill impairments.	553 companies which are relatively more likely to recognize goodwill impairments.	Firms with equity market expectations are associated with above-the-line accounting choices, and firms with covenants and bonus plans are related to below-the-line accounting choices.
Bisogno, M.	Journal of Management & Development, 2015	Are goodwill impairments used to manipulate earnings?	197 Italian listed companies; 591 firm-year observations spanning from 2011–2013.	IFRS has induced managers to deliberately manipulate earnings. Goodwill impairments are associated with earnings management actions.
Davis, M.	Journal of American Academy of Business, Cambridge, 2006	Has the impairment test solved problems regarding goodwill?	1,979 firms that reported goodwill write-offs during 1995–2002.	The transition to testing goodwill for impairment has enhanced the situation. However, it has also enabled companies to engage in big bath actions.
Giacomino, D.E. & Akers, M.D.	Journal of Business & Economics Research, 2009	How do the goodwill impairments affect earnings quality?	Fortunate 100 companies in 2008 and 2009.	Goodwill impairments were used as a big bath action in 2009. Thus, goodwill impairments have a significant effect on earnings quality.
Haman, J. & Jubb, C.	Working paper, Monash University	Do managers use discretion to manipulate earnings?	343 Australian firms 2005–2007.	Managers use discretion by delaying goodwill impairments.
Henning, S.L., Shaw, W.H. & Stock, T.	Review of Quantitative Finance and Accounting, 2004	Regarding the timing and amount of goodwill write-downs, do managers use discretion too widely?	1,567 U.S. And 563 U.K. Acquisitions during 1990–1994.	U.S. firms delayed goodwill write-downs, and U.K. firms timed write-downs to avoid agency costs.

Researchers	Publication and year	Research question	Data used	Results
Jordan, C.E. & Clark, S.J.	Journal of Applied Business Research, 2004	Are goodwill impairments associated with big bath actions?	Fortune 100 companies in years 2001 and 2002.	In the adoption year of SFAS 142, firms used goodwill impairments to take a bath.
Masters-Stout, B., Costigan, M.L. & Lovata, L.M.	Critical Perspectives on Accounting, 2008	Does the tenure of CEOs affect goodwill impairment decisions?	Fortune 500 companies during years 2003–2005.	New CEOs are more likely to impair goodwill than their senior counterparts.
Riedl, E.J.	The Accounting Review, 2004	The associations between write-down amount and economic factors, and write-down amount and reporting incentives. Do they differ?	2,754 firm-year observations during years 1992–1998.	Reporting regarding big bath incentives is strongly associated with write-downs.
Saastamoinen, J. & Pajunen, K. & Ojala, H.	Working paper, 2013	What are the perceptions of financial analysts regarding goodwill accounting?	Survey questionnaire to financial analysts in Nordic countries and in Austria in October 2012 - March 2013. 45 responses were received.	First, the decision to impair goodwill is affected by discretion granted to management. Second, IFRS regulation improves goodwill-based financial information.
Saastamoinen, J. & Pajunen, K.	Managerial Auditing Journal, 2013	What are the perceptions of auditors regarding IFRS-based goodwill accounting?	Electronic questionnaire to KHT certified Finnish auditors with 123 responses.	Managers act opportunistically regarding the impairment decision, but auditors reacted also favorably towards IFRS-based goodwill accounting.
Sevin, S. & Schroeder, R.	Managerial Auditing Journal, 2005	Does SFAS 142 enable big bath actions?	A random selection of companies with December 31, 2002 fiscal year-ends with 202 firms.	SFAS 142 allows companies to take a bath. Especially, big bath actions are taken by smaller firms.
Storå, J.	Hanken School of Economics, 2013	Are earnings manipulated through goodwill impairments?	A sample of 2,743 observations during years 2005–2010.	Goodwill impairments are avoided if earnings roughly exceed the target. Moreover, earnings are managed downwards if earnings evidently exceed or fall short of the target.

4.2 Timeliness of goodwill impairments

IAS 36 changes drastically the timeliness of impairment test and its mechanics. Impairment-approach should be more explicit compared to straight-line basis on the following issues: (1) when to test for impairment, (2) what level of CGU to test; and (3) how to determine the amount of impairment. IAS 36 requires goodwill to be tested for impairment annually and under certain circumstances. Under IAS 36, an impairment test ought to be conducted same time annually. This is due to the fact that an impairment test cannot be timed in a way that it could affect the results. As it has been already discussed, IAS 36 (as well as SFAS 142) permit managers to use discretion determining the timely of goodwill impairment decisions, which is an essential part of earnings management practices.

Following the adoption of new standards (both IAS 36 and SFAS 142), it was expected that the adoption of those standards would lead to improved timeliness of goodwill impairment recognition. Chen *et al.* (2008) examine whether firms, which reported goodwill impairments in the adoption year of SFAS 142, enhanced their timeliness of goodwill impairment recognitions. The sample of the study comprises 1,763 firms of which 726 report goodwill impairments. Their findings give support to the objectives of the standards (both IAS 36 and SFAS 142): goodwill amortization lacks timeliness as is captured by the relation between prior returns and adoption impairments in regression model 1. In addition, the current standards seem to represent timelier information on goodwill impairments. Despite the enhancement of the timeliness, their findings suggest that timeliness of goodwill impairments can still be enhanced.

Jarva (2009) examines goodwill impairments under SFAS 142 focusing on whether these are associated with the expected future cash flows. His sample comprises firms listed on NYSE, AMEX and NASDAQ on the condition that they report goodwill impairments between 2002 and 2005. He discovers that one and two-year-ahead expected cash flows can be predicted by goodwill impairments. This implies that – on average – goodwill impairments are closely associated with economic factors rather than management's behavior. Jarva (2009) also pursues examining a sample of non-impairment firms in the light of having evidence on avoidance of goodwill impairments. However, he does not find convincing evidence that these firms would be avoiding goodwill impairments on purpose. Ji (2013) finds evidence that Australian firms applying IFRS are avoiding goodwill impairments particularly if the impairments affected substantially the reporting entities' earnings.

Also the triggering events of goodwill impairments have been under examination. Comiskey and Mulford (2010) examine what kinds of triggering events firms face prior to goodwill impairment decision, and whether managers use discretion regarding the impairment decision. Their search for finding triggering events focuses on annual Form 10-K filings recently (recently as of 2010) filed in to the SEC by US firms. In these filings, the firms under examination report the triggering events concerning the goodwill impairments. Comiskey and Mulford (2010) select the firms with certain keywords, and listed all the triggering events different from each other. The final sample comprises approximately 150 firms. The results show that the Top 5 triggering events were: (1) decreases in the market value, (2) increases in competition, (3) adverse legal or regulatory developments, (4) decreases in performance or failing to meet the expectations, and (5) decreases in economic conditions. Despite the wide gamut of various types of triggering events, the management seems to deny the need for the impairment in several cases. Condensed, the management seems to be more optimistic than probably ought to be, thus deciding not to recognize goodwill impairments. For example, even though the stock is trading below its book value, the management denies the triggering event as the long-term fundamentals of the company's business have not changed. Based on the results, Comiskey and Mulford (2010) conclude that the judgmental discretion permitted to management affects substantially the goodwill impairment decisions. Also Li and Sloan (2009) confirm this by finding out that goodwill impairments seem to be high when pre-goodwill impairment operating margins are low. They also document that the carrying amounts of goodwill differ substantially from the fair values, implying that – taken these together – management tends to delay goodwill impairments.

Jahmani *et al.* (2010) examine goodwill impairments as an income smoothing tool, and their focus is on the management's decision making. More specifically, they examine whether the management deliberately times a goodwill impairment to smoothen the earnings of the accounting period. The sample comprises 200 SFAS 142 applying companies, observations spanning from years 2003–2005. Jahmani *et al.* (2010) require the companies to have goodwill on their balance sheets. These companies are selected randomly from different sectors. However, due to the lack of information concerning the goodwill, only 117 companies were selected for the final examination. Jahmani *et al.* (2010) assume that companies reporting losses for the accounting period also recognize a goodwill impairment. They find out that companies reporting losses for three consecutive years seem to avoid goodwill impairments. Moreover, they categorize companies into three classes based on whether they report return on assets

(ROA) of 2 % or less for three consecutive years, for two years, and for one year. Jahmani *et al.* (2010) presume companies reporting ROA of 2 % or less for three consecutive years to have recognized a goodwill impairment. Furthermore, they assume companies which have relatively low ROA for two years to have impaired capital, but they did not recognize any goodwill impairment. This implies that these companies delay goodwill impairments to subsequent period when earnings are anticipated to be higher.

Ramanna and Watts (2009) are interested in the proxies that are associated with goodwill non-impairments under SFAS 142. They examine whether the non-impairments are related to the proxies for management's inside information on positive future cash flows or agency-based motives. They only examine firms with goodwill, and if the market value of equity is bigger than the book value. Using these requirements, their sample comprises 124 firm-year observations during the years 2003–2006. By applying several regression models they find no evidence that the non-impairments would be associated with the management's inside information on future cash flows. However, Ramanna and Watts (2009) do find some evidence on delaying or avoiding goodwill impairments if these affected CEO compensation, CEO reputation, or debt-covenants.

Ojala (2007) examines the timeliness of goodwill impairments in the U.S. firms, and whether these impairments provide timely information for investors. With a sample of 605 firm-year observations spanning from years 2001–2006, he uses OLS regression analysis to find out whether goodwill impairments are associated with the rate of lagged returns of the firms' stocks. As a result, Ojala (2007) documents that the U.S. firms delay goodwill impairments with one or two years on average as the reported goodwill impairments – on average – lag behind the economic impairment of goodwill. This suggests that the goodwill impairments do not yield timely information to investors.

Table 2. Prior research on the timeliness of goodwill impairments.

Researchers	Publication and year	Research question	Data used	Results
Chen, C., Kohlbeck, M. & Warfield, T.	Advances in Accounting, 2008	How has SFAS 142 affected the timeliness of goodwill impairments?	1,763 of which 726 firms reported goodwill impairments.	SFAS 142 has substantially improved the timeliness of goodwill impairment recognitions.
Comiskey, E. & Mulford, C.	Managerial Finance, 2010	Do certain events trigger goodwill impairments? Does management avoid the timing of a goodwill impairment?	150 public firms were selected from the Form 10K filings made to SEC.	There are various different kinds of triggering events in significance and severity. Managers' estimate requires a great judgmental discretion due to which these estimates might be altered to avoid goodwill impairments.
Jahmani, Y., & Dowling, W.A. Torres, P.D.	Journal of Business & Economics Research, 2010	Does management deliberately select the timing of goodwill impairment recognition to smooth the company's earnings?	A sample of 200 companies was pruned due to lack of information on goodwill. The final sample consisted of 117 companies in years 2003–2005.	SFAS No. 142 provides an opportunity for management to manipulate reported earnings. Most of the companies attempt to manage the volatility of earnings by avoiding taking impairment losses.
Jarva, H.	Journal of Business Finance & Accounting, 2009	Are goodwill impairments associated with expected future cash flows? Are U.S. firms avoiding goodwill impairments?	U.S. firms that report goodwill impairments during 2002–2005; non-impairment U.S. firms.	Goodwill impairments are associated with expected future cash flows, but he finds no evidence that non-impairment firms would be avoiding recognition of goodwill impairments.
Ji, K.	Australian Accounting Review, 2013	Are companies delaying or avoiding goodwill impairments even though they ought to recognize an impairment?	77 companies during year 2007–2009; 231 firm-year observations.	Companies delay and avoid goodwill impairment recognitions. The impairments were more likely to be delayed or avoided if those impairments had had a substantial effect on earnings.
Li, K. & Sloan, R.	Working Paper, 2009	To examine the effect of SFAS 142 on goodwill accounting.	329 firm-year observations spanning from 1996–2001.	The transition to SFAS 142 has led to delaying goodwill impairments, and that the carrying amounts differ substantially from the fair values.
Ojala, H.	Doctoral dissertation, Helsinki School of Economics, 2007	To examine the timeliness of goodwill impairments under SFAS 142.	605 firm-year observations in U.S. firms spanning from years 2001–2006.	Goodwill is not impaired timely in U.S. companies. Therefore, goodwill impairments do not yield timely information to investors.
Ramanna, K. & Watts, R.	Working Paper, 2009	To examine the proxies associated with the goodwill impairments.	124 firm-year observations spanning from years 2003–2006 including firms whose market value exceeds book value, and which have goodwill worth over \$1m.	Goodwill impairments are associated with agency-based proxies to some extent, but not with management's private information on positive future cash flows.

5. HYPOTHESIS DEVELOPMENT

In this chapter, the hypotheses of this paper are formulated. Prior to this, theory-based frameworks for these hypotheses are provided. Even though IFRS standards are the same in different countries, it is worthwhile to take into consideration that reporting environments can vary substantially from each other. Therefore, for the first hypothesis, Finnish reporting environment with its main principles is depicted first, after which the background of second hypothesis is given.

5.1 IFRS in Finnish reporting environment

From the beginning of accounting period of 2005, all European listed companies were to adopt IFRS in order to compile their consolidated financial statements. IFRS were adopted due to the fact that one set of high-quality standards would guarantee a high level of comparability and transparency of financial information. Higher quality financial reporting enhances stock market liquidity and reduces the cost of capital. However, Nobes (2008) points out that the adoption of these standards does not ensure complete international comparability as the IFRS will not be applied in the same way everywhere. For example, Kvaal and Nobes (2010) examine five countries in the adoption year, and find out that no complete international comparability of financial information is yet accomplished.

In the beginning of the new millennium, IFRS were not a totally new issue in Finnish accounting environment. The transition to IFRS-based accounting changed, however, the previous Finnish accounting as the adoption of IFRS introduced many new issues into accounting which differ from the Finnish Accounting Act. In IFRS, the significance of balance sheet is more important compared to the traditional Finnish accounting, which emphasizes the importance of income statement. Until this point, the emphasis was on how the profit or loss comprises, and the value of assets was not considered as important as the profit and loss statement. (Pajunen, 2010) Traditionally, the use of fair value has not been typical in Finnish accounting, which is totally opposite to IFRS. In Finnish accounting, the prudence has traditionally been an important aspect of financial reporting. Virtanen (2009) argues that despite the adoption of IFRS, prudence is still an important aspect in Finnish accounting as well as in connection with accounting and taxation, even though these aspects differ from the point of view of IFRS.

Prior to the adoption of IFRS, goodwill was amortized according to plan in 5–10 years. Even though the straight-line basis ought not to be under the target of management’s discretion, this is not the whole truth. Finnish Accounting Act permits goodwill to be amortized not later than 20 years. This implies that the management might have used goodwill impairments to manage earnings prior to the IFRS-adoption as well. For instance, a company can amortize goodwill in 20 years to manipulate the earnings, thus avoiding the negative effects on management compensation as long as the company explains the reason in the notes. In the light of IFRS, IFRS requires conditional conservatism which “is the greater aggressiveness in the recognition of bad news than in the recognition of good news” (André *et al.* 2015). Compared to the prior straight-line basis, IAS 36 requires to test goodwill at least annually for the possible impairment, or whenever there are indications of impairments. André *et al.* (2015), however, state that the wide discretion allowed by IFRS might have actually prevented IASB to reach the target it has set for financial reporting. Furthermore, some argue that IFRS is less prudent compared to national GAAP for the following reasons. First, there is no such concept as ‘prudence’ mentioned in the conceptual framework. Second, IFRS allows several fair value alternatives that are imprudent. (André *et al.* 2015)

As the prior literature demonstrates, goodwill impairments are used very often in different forms to manipulate the earnings. The various types of earnings management incentives have been discussed in more detail in section 3. Even though IFRS is expected to constrain managers’ discretion to manage earnings by removing many allowable accounting policies, it must be taken into consideration that IFRS 3 and IAS 36 provide a substantial gamut of discretion to the management. Regarding IFRS 3, managers might, for example, select to use a small discount rate when determining the CGUs, which means that they could thus avoid recognizing a goodwill impairment.

Having given aforementioned arguments, the first hypothesis is posited as following:

H₁: Goodwill impairments are associated with earnings management actions in Finnish listed companies during 2005–2014.

5.2 Financial crisis

According to a wide gamut of accounting literature, earnings management motivations shall be enumerated as follows: motivations related to market, and motivations arising from agency relationships (Filip and Raffournier, 2014). Regarding the market influence, some research

document that companies practice upwards earnings management in order to avoid losses, any declines in earnings, or negative earnings surprises (see Ayers *et al.* 2006; Burgstahler and Dichev, 1997). As the prior literature illustrates (see section 4), firms also manipulate earnings due to earnings-based compensation and debt covenants.

The financial crisis had substantial effects in Europe. It began in the U.S. market in mid-2007, but its effects became more prevalent across the globe from the second quarter of 2008 (Mollik *et al.* 2013). As it can be seen in Figure 4, the annual growth rate of GDP in Finland exceeded the annual growth rate of Euro area prior to the financial crisis. From 2003 to 2007, the growth rate of GDP ameliorated steadily both in Finland and in Euro area. After this, it decreased somewhat moderately until 2008, after which it sagged. The impacts of the financial crisis were substantially more disquieting in Finland in 2009 than in Euro area on average. The GDP in Euro area and Finland fell 4.5 % and 8.3 % respectively.



Figure 4. Annual GDP growth rates

Source: World Bank

Earnings management actions can be reflected to financial crisis years as well. There are some reasons to assume that earnings manipulation would occur less likely during financial crisis years. First, stakeholders and auditors monitor companies more carefully during the crisis years (Chia *et al.* 2007). In other words, managers would have less discretion to manage earnings when under surveillance. Furthermore, companies are subject to litigation risks during crisis periods, when markets face sharp drops (Filip and Raffournier, 2014). Therefore, managers ought to respond to these risk by controlling earnings management actions.

Second, lower earnings manipulation actions might exist due to a demand for lower earnings during recession periods (Filip and Raffournier, 2014). This is rationalized as reported earnings during these periods are less persistent, and hence do not reflect future predictions. Consistent with this, Brown *et al.* (2006) document that the value relevance of earnings varies depending on the business cycle. As a result, due to the uncertainty regarding future outcomes, market demands lower earnings during crisis periods.

Filip and Raffournier (2014) examine how macroeconomic conditions affect earnings manipulation in 16 European countries. They discover that firms are less likely to manage earnings during the crisis years. Furthermore, Cimini (2015) investigates whether and how the misrepresentation regarding financial information is affected by the financial crisis. By analyzing 11,844 firm-year observations, he documents a decrease in the misrepresentation of financial statements in the vast majority in Europe.

Based on these aforementioned arguments and results of prior studies, the second hypothesis (presented in the form of null hypothesis) is formulated as follows:

H₂: During the financial crisis years, goodwill impairments are not associated with earnings management actions.

6. RESEARCH DESIGN

This chapter represents the data and estimation models used in this paper. A thorough insight is given about how the data are collected and final sample formed as well as how the hypotheses of this paper are tested.

6.1 Data

This paper examines whether goodwill impairments have been subject to earnings manipulation in Finnish listed companies during the years 2005–2014. The data are collected from Thomson Reuters database. First, the data are gathered for all OMX Helsinki listed companies during the years 2000–2014 to examine whether the amount of goodwill amortizations recognized prior to the adoption of IFRS differ substantially from goodwill impairments. This yielded 4,230 firm-year observations. After this, all the firm-year observations are deleted for which there was not the following data available: cash flow from operations; net income; revenues; property, plant and equipment; total assets; accounts receivable; goodwill; total debt to total equity; or ROA. Finally, all the firm-year observations until 2005 are deleted, and those firm-year observations in 2005 for which the needed ratios could not be calculated due to lack of data in 2004. In this research, banks and financial institutions are excluded from the sample. Even if these applied IFRS, they are subject to specific reporting regulations. Furthermore, the empirical models, which detect earnings management actions, have not been developed for the financial industry (Filip and Raffournier, 2014). However, not a single financial institution observation had to be deleted as they were eliminated because of the criteria set for the sample. Hence, the final sample of this paper comprises 899 firm-year observations spanning from years 2005–2014. The formation of the final sample is depicted in table 3.

Table 3. The final sample

Criterion	
1. Firm-year observations in OMX Helsinki during 2000–2014	4,230
2. Firm-year observations for which there were no needed data available	-2,789
3. Firm-year observation spanning from year 2000–2004	-452
4. Firm-year observations for which could not be calculated needed ratios for year 2005 due to lack of data in 2004	-90
Final sample	899

6.2 Estimation model and variables

Jones (1991) defines the accruals as a function of revenues growth, and property, plant and equipment (PPE). However, the explanatory power of Jones model is quite low – approximately 10 % – even though it manages to confirm the correlation between accruals and firm attributes (Dechow *et al.* 2010). They suggest that the considerable discretion permitted to managers might explain the low explanatory power of Jones model. As briefly discussed in section 3.5, Dechow *et al.* (1995) present the Jones model which adjusts the growth in credit sales. They elaborate that credit sales are vulnerable to manipulation due to which the modification ameliorates the explanatory power, yielding a residual which is not correlated with normal, revenue accruals. Hence, the modified Jones model (Dechow *et al.* 1995) detects better revenue manipulation.

From the different methodologies adopted in discovering earnings manipulation, the modified Jones model is adopted to consider the discretionary components of total accruals as a measure of financial statements' reliability. This is due to the fact that the modified Jones model provides the most powerful tests regarding earnings management actions (Dechow *et al.* 1995). Moreover, Dechow *et al.* (2010) suggest that the modified Jones model enhances the explanatory power of regression. Alves (2013) states that accruals are likely to be affected by goodwill impairment losses, which would reduce the reported earnings with no effect on the cash flow from operation, thus providing significant scope for earnings management actions. By using income statement and balance sheet items, total accruals (*TAC*) are expressed as the difference between net income (*NI*) and cash flows from operations (*CFO*).

$$TAC = NI - CFO \quad (5)$$

Furthermore, total accruals (*TAC*) can be divided into discretionary (*DAC*) and non-discretionary (*NDAC*) accruals. Hence:

$$TAC = DAC + NDAC \quad (6)$$

In this paper, the modified Jones model developed by Dechow *et al.* (1995) is adopted. This model assumes that revenues are discretionary accruals as well. However, the model is slightly modified further. Kasznik (1999) includes the yearly changes in cash flow from operations to the modified Jones model, which, according to Siregar and Utama (2008), improves detecting

earnings management actions, and provides a high R^2 . Thus, the estimation model used is as follows:

$$\frac{TAC_{it}}{TA_{it-1}} = \alpha \frac{1}{TA_{it-1}} + \beta_1 \frac{(\Delta REV_{it} - \Delta REC_{it})}{TA_{it-1}} + \beta_2 \frac{PPE_{it}}{TA_{it-1}} + \beta_3 \frac{\Delta PPE_{it}}{TA_{it-1}} + \beta_4 \frac{\Delta CF_{it}}{TA_{it-1}} + \varepsilon_{it} \quad (7)$$

where, i and t denote the company and the year respectively. TAC is total accruals, ΔREV is the change in revenues, ΔREC is the change in account receivables, PPE is property, plant and equipment; ΔPPE is the change in property, plant and equipment; ΔCF is the change in cash flow from operations, TA is total assets, and ε is the residual term. The variable on the left-hand side is the dependent variable, and the variables on the right-hand side are independent variables. The ordinary least squares (OLS) regression analysis is used to first estimate the discretionary accruals, which goodwill impairments are a part of as stated throughout this paper. However, the results of the OLS regression regarding the estimation of discretionary accruals are not tabulated.

Changes in working capital – such as account receivables, inventory and account payables – are included in total accruals, and they all are influenced by changes in sales (ΔREV). Jones (1991) states that property, plant and equipment as well as changes in sales are included to control the changes in non-discretionary accruals caused by altered conditions. Revenues can be regarded as a rationale and objective measure of the firm's operations before management's manipulation actions, even though they cannot be regarded as completely exogenous. Thus, revenues are included to control the economic environment of the company. The purpose of gross property, plant and equipment (PPE_{it}) is to control the part of total accruals related to non-discretionary depreciation expenses. Mariani *et al.* (2010) suggest to include also yearly changes in PPE as these reduce potential biases, even though PPE_{it} itself is a significantly explicative variable. Finally, all the variables in the model are deflated by the lagged value of total assets as this reduces heteroscedasticity (Piot and Janin, 2007).

The variables of the modified Jones model are divided into non-discretionary accruals and discretionary accruals. As these form total accruals, discretionary accruals can be seen as unexplained components of total accruals, that is, the residual term ε_{it} .

$$\varepsilon_{it} = \frac{TAC_{it}}{TA_{it-1}} - \left[\frac{\alpha}{TA_{it-1}} + \beta_1 \frac{(\Delta REV_{it} - \Delta REC_{it})}{TA_{it-1}} + \beta_2 \frac{PPE_{it}}{TA_{it-1}} + \beta_3 \frac{\Delta PPE_{it}}{TA_{it-1}} + \beta_4 \frac{\Delta CF_{it}}{TA_{it-1}} \right] \quad (8)$$

6.2.1 OLS regression

The value of discretionary accruals (ε_{it}) is used as a proxy for earnings management. Negative sign of discretionary accruals implies that firm has engaged in income-decreasing earnings management actions whereas positive sign that firm has manipulated earnings upwards by using accruals. After having estimated the discretionary accruals, another regression analysis (OLS) is performed to test the hypotheses. As prior literature suggests, goodwill impairments are not the only factor influencing earnings management actions, but also leverage, political costs (size), cash flow from operations, and performance (ROA) affect earnings management. This is mainly the same model Bisogno (2015) uses, but some modifications are done. Instead of using yearly changes in goodwill, these changes are divided into four components. In addition, in order to take the effects of financial crisis into account, a dummy variable is included to control these effects. Given these assumptions, the hypotheses are tested as follows:

$$\varepsilon_{it} = \alpha + \alpha_1 GW_IMP_{it} + \alpha_2 IMPAIR_{it} + \alpha_3 GW_INC_{it} + \alpha_4 INC_{it} + \alpha_5 LEV_{it} + \alpha_6 SIZE_{it} + \alpha_7 CF + \alpha_8 ROA_{it} + \alpha_9 \ln TAC_{it} + \alpha_{10} FC_i + e_{it} \quad (9)$$

where,

ε_{it}	The value of discretionary accruals in company i in year t
GW_IMP_{it}	Dummy variable; coded to 1 if company i has impaired goodwill in year t , and 0 otherwise
$IMPAIR_{it}$	The amount of goodwill impairment company i has recorded in year t
GW_INC_{it}	Dummy variable; coded to 1 if goodwill has increased in company i in year t , and 0 otherwise
INC_{it}	The amount of increase in goodwill for company i in year t
LEV_{it}	Total debt to total assets of the company i in year t
$SIZE_{it}$	Natural logarithm of the total assets in company i in year t
CF_{it}	Cash flow from operations in company i in year t
ROA_{it}	Return on assets for firm i in year t
$\ln TAC_{it}$	Natural logarithm of total accruals in company i in year t

FC_i	Dummy variable; coded to 1 if company i has recognized a goodwill impairment in year 2008–2009, and 0 otherwise
e_{it}	Error term for company i in year t

In the model, the dependent variable is the value of discretionary accruals estimated in the modified Jones model, and all other variables are independent variables. Yearly changes in goodwill have been divided into four factors. On the one hand, it is separated whether a firm impairs goodwill in certain year or not (GW_IMP_{it}), and what the amount of the impairment ($IMPAIR_{it}$) is. As goodwill impairments are assumed to be used to manage earnings through the accruals, the decisions to impair goodwill are expected to increase when the earnings have been managed downwards, that is, the discretionary accruals are negative. Hence, GW_IMP_{it} is expected to be negatively associated with the dependent variable, that is, the discretionary accruals. Similarly, as the earnings have been managed downwards, it is assumed to be done by using goodwill impairments. Since the amounts of goodwill impairments are modeled as negative values, $IMPAIR_{it}$ is expected to be positively associated with the dependent variable. On the other hand, it is examined whether the amount of goodwill has increased or not (GW_INC_{it}), and what the amount of increase in goodwill (INC_{it}) is. Obviously, if the earnings have been managed downwards, it not expected that goodwill increases. Given this assumption, these variables are expected to be positively associated with the dependent variable.

Leverage (LEV_{it}) is measured with the ratio total debt to total assets. As it has already been discussed in this paper, firms with higher leverage seem to be more prone to manage earnings downwards (Alves, 2013). Given this, the leverage is assumed to have a negative association with earnings management actions, that is, discretionary accruals. $SIZE_{it}$ is calculated as the natural logarithm of the total assets. Burgstahler *et al.* (2006) find that relatively smaller firms are more prone to manage earnings upwards due to which the $SIZE_{it}$ is expected to be negatively associated with earnings management actions. As it has been stated earlier in this section, total accruals are calculated as the difference between cash flow from operations (CF_{it}) and net income. Thus, as the cash flows from operations increase, total accruals decrease (*ceteris paribus*). Hence, it is assumed that the coefficient of this variable to be negatively associated with earnings management practices. The performance of a company is measured with ROA_{it} , and it has been discussed previously in this paper that companies with lower performance are more likely to manipulate earnings downwards. Therefore, ROA_{it} is assumed to be positively

associated with discretionary accruals. The natural logarithm is used in total accruals, and it is expected that the coefficient of this variable ($\ln TAC_{it}$) is positive as companies with high discretionary accruals are to have high value of total accruals. Finally, it is expected that as the earnings are managed downwards during financial crisis, this is not done by impairing goodwill. Therefore, it is assumed that the financial crisis dummy variable (FC_i) decreases when earnings are managed downwards. Given this, FC_i is expected to be positively associated with the discretionary accruals.

6.2.2 Logistic regression

In addition to the aforementioned OLS regression estimation model, big bath actions are examined by estimating a logistic regression model. As the previously presented OLS regression model examines earnings management actions in general, the logistic regression model examines whether Finnish publicly quoted companies have been engaged in big bath actions by using goodwill impairments. As it has been stated, big bath refers to a situation in which a company deliberately worsens net earnings (Healy, 1985). Therefore, it is assumed in this paper that only companies having the largest negative discretionary accruals may have been engaged in big bath actions. The direction of the discretionary accruals, that is, whether the firms have deliberately manipulated earnings upwards or downwards, is presented in figure 5.

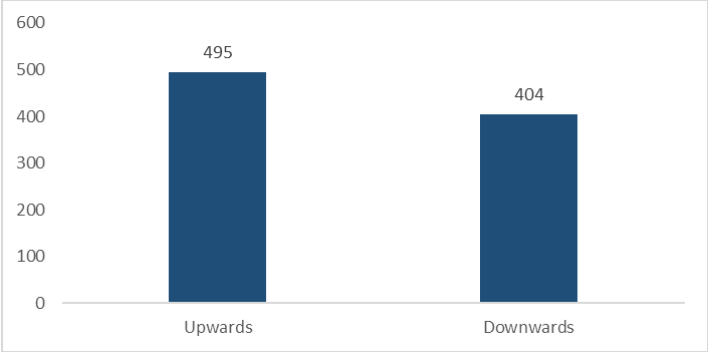


Figure 5. The direction of earnings manipulation

As it can be seen from the figure 5, of 899 firm-years observations spanning from 2005–2014, 495 have manipulated their net earnings upwards, and 404 downwards. Of these downwards-manipulating companies, not all companies can be engaged in big bath actions. This is simply because big bath actions assume that earnings have been drastically manipulated downwards. Hence, it is assumed that companies, which have manipulated their earnings upwards, 25 % of

the smallest discretionary accruals recorded companies have been engaged in big bath actions. Given these assumptions, 101 companies are expected to have used goodwill impairments as big bath actions.

The use of goodwill impairments as big bath actions is examined by using logistic regression model. This is due to the fact that the dependent variable of the model, that is, whether the firm has engaged in big bath or not, is categorical. Given this, this variable is used as a proxy for big bath actions on the left-hand side of the regression model. Similar to the OLS regression model, the same independent variables are assumed to affect big bath actions. Given these, the logistic regression model is formulated as follows:

$$Prob(BIG_BATH_{it}) = \frac{1}{1 + e^{-z}} \quad (10)$$

where

$$Z = \alpha + \alpha_1 GW_IMP_{it} + \alpha_2 IMPAIR_{it} + \alpha_3 GW_INC_{it} + \alpha_4 INC_{it} + \alpha_5 LEV_{it} + \alpha_6 SIZE_{it} \\ + \alpha_7 CF + \alpha_8 ROA_{it} + \alpha_9 \ln TAC_{it} + \alpha_{10} FC_i + e_{it}$$

In the logistic regression model (10), BIG_BATH_{it} is the dependent variable and is coded as 1 if company i is expected to have engaged in big bath actions in year t , and 0 otherwise. The independent variables have been explained in section 6.2.1. As big bath actions increase, it is expected that it is due to management's increased decision to impair goodwill. Given this, GW_IMP_{it} is expected to be positively associated with BIG_BATH_{it} . Similarly, the amounts of goodwill are expected to increase as big bath behavior increases. However, as goodwill impairments are modeled as negative values, $IMPAIR_{it}$ is expected to be negatively associated with the dependent variable. When firms engage in big bath actions, it is expected that goodwill does not increase. Given this rationale, it is expected that both GW_INC_{it} and INC_{it} are expected to be negatively associated with BIG_BATH_{it} . According to prior literature, firms engaging in earnings management actions are more likely to have higher leverage ratio, and the firms are expected to be smaller. Given these, it is assumed that LEV_{it} is positively associated, and $SIZE_{it}$ is expected to be negatively associated with the dependent variable. Similarly, cash flows are expected to be smaller when firms engage in earnings management, especially big bath, actions. Thereby, CF_{it} is expected to be negatively associated with big bath actions. Firm performance is likely to be weaker in regards to big bath behavior. Hence, ROA_{it} is expected to be negatively

associated with BIG_BATH_{it} . Firms engaging in big bath are likely to have high total accruals. Thus, it is expected that total accruals ($lnTAC_{it}$) is positively associated with big bath behavior, that is, the dependent variable. In regards to the financial crisis dummy variable (FC_i), it is expected that firms engaging in big bath behavior are not likely to use goodwill impairments to take a bath. Given this, it is expected that FC_i is negatively associated with the dependent variable BIG_BATH_{it} .

7. RESULTS

This section presents the results of the tests performed in this paper. However, the results regarding the modified Jones model to estimate the discretionary accruals are not tabulated. Instead, the results of the main tests are provided in this section. First, descriptive statistics on the independent variables are provided, after which the correlation between variables and regression results are presented. Finally, to test the validity of the results, robustness tests are performed.

7.1 Descriptive statistics

Table 4 provides the descriptive statistics for the independent variables (for both OLS and logistic regression model). The following variables have been chosen to be presented: observations, minimum, maximum, mean, median, standard deviation, and variance.

Table 4. Descriptive statistics for independent variables in years 2005–2014

Variable	Observations	Minimum	Maximum	Mean	Median	Std. Dev.	Variance
GW_IMP_{it}	899	0.00	1.00	0.31	0.00	0.46	0.02
$IMPAIR_{it}$	899	-1,581.00	0.00	-11.69	0.00	85.65	7,336.73
GW_INC_{it}	899	0.00	1.00	0.48	0.00	0.50	0.25
INC_{it}	899	0.00	4,873.00	16.73	0.00	171.38	29,371.91
LEV_{it}	899	0.00	14.39	0.84	0.58	1.26	1.58
$SIZE_{it}$	899	0.28	10.59	5.76	5.50	1.90	3.62
CF_{it}	899	-2,153.00	5,320.00	13.05	1.35	280.22	78,523.77
ROA_{it}	899	-0.67	0.59	0.03	0.04	0.10	0.01
$\ln TAC_{it}$	899	-5.12	8.10	2.32	2.25	2.20	4.84
FC_i	70	0.00	1.00	0.08	0.00	0.27	0.07

GW_IMP_{it} denotes a dummy variable which is coded to 1 if company i impairs goodwill in year t , and 0 otherwise. $IMPAIR_{it}$ is the amount of goodwill company i has impaired in year t . GW_INC_{it} is a dummy variable coded to 1 if the amount of goodwill has increased in company i in year t , and 0 otherwise. INC_{it} denotes the amount of increase in goodwill for company i in year t . LEV_{it} is the ratio total debt to total assets for company i in year t . $SIZE_{it}$ denotes natural logarithm of total assets for company i in year t . CF_{it} is the cash flow from operations for company i in year t . ROA_{it} stands for return on assets for the company i in year t . $\ln TAC_{it}$ is the natural logarithm of the total accruals in company i in year t . FC_i is a dummy variable coded to 1 if company i has recognized a goodwill impairment in years 2008–2009, and 0 otherwise.

According to table 4, of all firm-year observations, only 31 per cent have recognized a goodwill impairment (GW_IMP_{it}). Of these goodwill impairments ($IMPAIR_{it}$), the largest impairment (-1,581.00) in millions of euros has been recorded by Nokia Corporation in 2013. As the mean in goodwill impairments is only -11.69, the impairment of goodwill recorded by Nokia in 2013 forms an outlier, which will be taken into account in the robustness tests in section 7.5. As the numbers are in millions of euros, the standard deviation and variance are very high compared

to other factors' corresponding numbers. Of all firm-year observations, 48 per cent have acquired more goodwill (GW_INC_{it}) in business combinations. Of these increases in goodwill (INC_{it}), the largest amount (4,873.00) has been recorded by Nokia Corporation as well in 2008. Consistent with the impairments, the goodwill increase recorded by Nokia in 2008 forms an outlier as the mean is only 16.73. However, this outlier will also be taken into consideration in the robustness tests. Again, the standard deviation and variance of this variable are very high compared to others. The ratio total debt to total assets varies between 0 and 14.39 while the mean being 0.84. Based on these, it seems that Finnish companies have not been that indebted on average during 2005–2014, even though there are some companies with relatively high leverage ratio. The size of the companies seems to vary a lot as the $SIZE_{it}$ varies between -0.07 and 10.59. It must be, however, taken into account that this has been calculated as the natural logarithm of total assets. The mean is 5.76 whilst the standard deviation is 1.90. Cash flow from operations varies also a lot in the sample. The mean 13.05 implies relatively small amount of cash flows even though the minimum (-2,153.00) and maximum (5,320.00) have a large difference. Return on assets (ROA_{it}) seems to be somewhat different in Finnish listed companies. The lowest ROA_{it} is -0.67 while mean being only 0.03. On average, it can be said that Finnish companies have not performed that well during 2005–2014 even though there are some outliers as well. Total accruals vary also a lot as the standard deviation is 2.15, whereas the minimum and maximum being -5.12 and 8.10 respectively.

The FC_i variable takes into account the goodwill impairments during the years of financial crisis, that is, 2008–2009. It reveals that only 70 goodwill impairments have been recognized during the financial crisis years. In addition, goodwill amortizations (prior to year 2005) and goodwill impairments (after the adoption of IFRS) are demonstrated in figure 5.

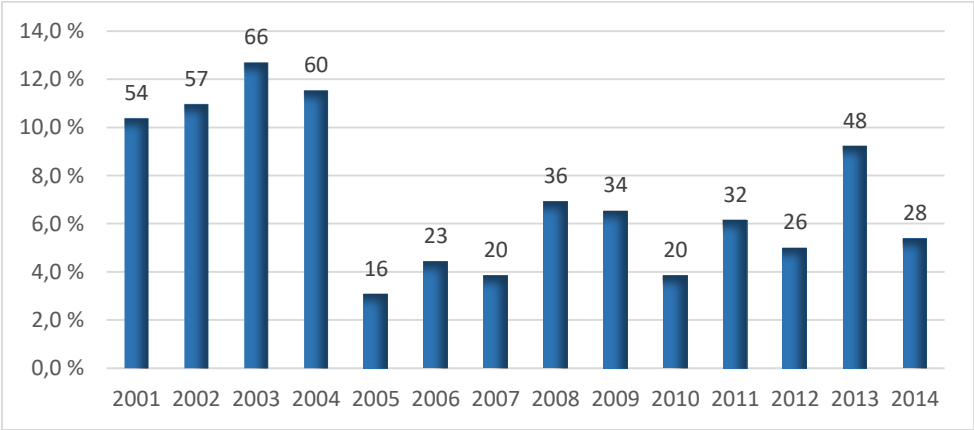


Figure 6. Yearly goodwill amortizations/impairments

As it can be seen in figure 5, Finnish listed companies have amortized more goodwill in years 2001-2004, which is exactly prior to the adoption of IFRS standards. In fact, the amortizations recognized during 2001–2004 contribute 45.6 % of all recognized goodwill amortizations/impairments during the period 2001–2014. After the mandatory adoption of IFRS standards, the number of goodwill impairments has decreased drastically. During the financial crisis years, impairments have been recognized slightly more than usually after the adoption, but the level of impairments does not reach the level prior to the adoption. Only in 2013 a greater number of impairments has been recognized.

7.2 Correlation between variables

This subsection presents the correlations between the variables both in OLS and logistic regression models. First, the correlations between the variables in OLS regression are presented. For the sake of simplicity, the correlation matrix of logistic regression is not tabulated as it differs from the OLS only on the dependent variable. However, these differences are elaborated.

7.2.1 OLS regression

Table 5 illustrates a correlation matrix for the variables used in the OLS regression analysis, and it provides both Pearson (below the diagonal) and Spearman (above the diagonal) correlations. For each variable, the first row denotes the correlation coefficient, and the second row shows the two-tailed significance level (p -value). Statistically significant correlations at the 0.01 and 0.05 levels are marked with ** and * respectively. All variables can be included in the regression model due to their moderate correlation with each other. According to Niemi (2005), only correlation coefficients greater than 0.80 denote multicollinearity problems.

From table 5, it can be seen that majority of the variables are not statistically significant. According to Pearson correlations (below the diagonal), the strongest, statistically significant negative correlation is between GW_INC_{it} and GW_IMP_{it} (-0.658), and strongest, statistically significant positive correlation (0.824) is between $SIZE_{it}$ and natural logarithm of total accruals ($lnTAC_{it}$). Furthermore, quite high positive correlation exists between goodwill impairment dummy variable (GW_IMP_{it}) and financial crisis dummy variable (FC) with the correlation of 0.429. This gives rise to assume to some extent that the decision to recognize a goodwill impairment is correlated with the financial crisis which is in line with the H_2 .

Table 5. Correlation matrix (OLS regression)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. ε_{it}	1.000	-0.079*	0.090**	0.106**	0.127**	-0.402**	0.150**	0.008	0.589**	0.375**	-0.067*
		0.017	0.007	0.001	<0.001	<0.001	<0.001	0.817	<0.001	<0.001	0.046
2. GW_IMP_{it}	-0.057	1.000	-0.754**	0.658**	-0.613**	0.045	0.054	-0.112**	-0.208**	0.050	0.429**
	0.087		<0.001	<0.001	<0.001	0.179	0.108	0.001	<0.001	0.130	<0.001
3. $IMPAIR_{it}$	0.016	-0.201**	1.000	0.642**	0.598**	-0.057	-0.120**	0.123**	0.226**	-0.108**	-0.402**
	0.635	<0.001		<0.001	<0.001	0.087	<0.001	<0.001	<0.001	0.001	<0.001
4. GW_INC_{it}	0.028	-0.658**	0.132**	1.000	0.782**	-0.102**	0.065	0.112**	0.201**	0.028	-0.282**
	0.395	<0.001	<0.001		<0.001	0.002	0.051	0.001	<0.001	0.394	<0.001
5. INC_{it}	0.004	-0.066*	0.013	0.101**	1.000	-0.089**	0.195**	0.145**	0.205**	0.148**	-0.263**
	0.905	0.047	0.690	0.003		0.008	<0.001	<0.001	<0.001	<0.001	<0.001
6. LEV_{it}	-0.162**	0.028	0.008	-0.077*	-0.024	1.000	0.119**	-0.167**	-0.438**	-0.026	0.076*
	<0.001	0.408	0.812	0.021	0.473		<0.001	<0.001	<0.001	0.430	0.023
7. $SIZE_{it}$	0.009	0.054	-0.239**	0.060	0.162**	-0.077*	1.000	0.179**	0.086*	0.765**	0.022
	0.779	0.104	<0.001	0.070	<0.001	0.021		<0.001	0.010	<0.001	0.507
8. CF_{it}	0.018	-0.075*	0.127**	0.066*	0.422**	-0.056	0.103**	1.000	0.458**	0.041	-0.127**
	0.595	0.025	<0.001	0.047	<0.001	0.095	0.002		<0.001	0.216	<0.001
9. ROA_{it}	0.370**	-0.212**	0.049	0.168**	0.051	-0.300**	0.170**	0.184**	1.000	0.211**	-0.159**
	<0.001	<0.001	0.146	<0.001	0.128	<0.001	<0.001	<0.001		<0.001	<0.001
10. $lnTAC_{it}$	0.214**	0.060	-0.201**	0.019	0.142**	-0.114*	0.716**	0.088**	0.235**	1.000	0.021
	<0.001	0.073	<0.001	0.571	<0.001	0.001	<0.001	0.008	<0.001		0.529
11. FC_i	-0.047	0.429**	-0.064	-0.282**	-0.028	0.025	0.015	-0.066**	-0.143**	0.027	1.000
	0.164	<0.001	0.054	<0.001	0.395	0.452	0.645	0.047	<0.001	0.421	

Notes

n = 899. See table 4 for definitions of the variables. Pearson (Spearman) correlations below (above) the diagonal.

According to Spearman correlations (above the diagonal), the strongest, statistically significant positive correlations (0.765) exist between $SIZE_{it}$ and total accruals $lnTAC_{it}$, and GW_INC_{it} and INC_{it} (0.782). Obviously, firm size is related to total accruals, and the increased goodwill is related to the amount of increased goodwill. The strongest negative correlation (-0.754) is between GW_IMP_{it} and $IMPAIR_{it}$. Naturally, as the GW_IMP_{it} decreases, INC_{it} increases (-0.613). If the number of recognized goodwill impairments decreases, the amount of goodwill obviously increases to some extent.

7.2.2 Logistic regression

For the sake of simplicity, a separate correlation matrix regarding the logistic regression model is not tabulated. It is mainly similar to the above showed correlation matrix, except for the correlations with the dependent variable. Thereby, only the correlations regarding the different variable, that is, big bath actions, are under examination in this subsection.

According to Pearson correlations (below the diagonal), BIG_BATH_{it} has statistically significant negative correlations with the increase in goodwill (GW_INC_{it}) dummy variable (-0.120), $SIZE_{it}$ (-0.189), ROA_{it} (-0.359) and natural logarithm of total accruals (-0.122). This implies that as the big bath actions increase, the goodwill decreases. Moreover, smaller firms with smaller ROA tend to be associated with big bath actions. However, it must be taken into account that these correlations seem not to be strong.

Spearman correlations suggest somewhat same statistically significant correlation between BIG_BATH_{it} and the aforementioned variables. In addition, BIG_BATH_{it} has a negative (-0.130) statistically significant correlation with the increased amount of goodwill (INC_{it}). This implies, however, the same as has been discussed above. Moreover, Spearman correlations suggest a positive (0.196), statistically significant correlation with leverage (LEV_{it}). This gives rise to assume that as the firm's debt-to-equity ratio increases, it is more prone to big bath actions as well.

7.3 Regression results

7.3.1 OLS regression

The results of OLS regression analysis are presented in table 6. This model provides R^2 (adjusted) = 23.3 (22.5) percent, which is quite high. This high explanatory power of the regression model is in line with previous studies (see Siregar and Utama, 2008; Bisogno, 2015).

Table 6. OLS regression results

Variables	Predicted	Coefficient	<i>p</i> -value	
<i>INTERCEPT</i>	?	0.137	<0.001	***
<i>GW_IMP_{it}</i>	-	0.001	0.914	
<i>IMPAIR_{it}</i>	+	7.24E-6	0.887	
<i>GW_INC_{it}</i>	+	-0.003	0.789	
<i>INC_{it}</i>	+	1.29E-5	0.629	
<i>LEV_{it}</i>	-	-0.005	0.139	
<i>SIZE_{it}</i>	-	-0.036	<0.001	***
<i>CF_{it}</i>	-	-7.81E-6	0.479	
<i>ROA_{it}</i>	+	0.456	<0.001	***
<i>lnTAC_{it}</i>	+	0.035	<0.001	***
<i>FC_i</i>	+	-0.007	0.678	
<i>Model summary</i>				
n	899			
<i>p</i> -value	<0.001***			
R^2	0.233			
Adj. R^2	0.225			

Statistical (two-tailed) significance (p-values) better than 0.001, 0.01, and 0.05 indicated by ***, **, and * respectively. *GW_IMP_{it}* denotes a dummy variable coded to 1 if company *i* impairs goodwill in year *t*, and 0 otherwise. *IMPAIR_{it}* is the amount of impaired goodwill by company *i* in year *t*. *GW_INC_{it}* is a dummy variable coded to 1 if the amount of goodwill has increased in company *i* in year *t*, and 0 otherwise. *INC_{it}* denotes the increased amount of goodwill in company *i* in year *t*. *LEV_{it}* is the ratio total debt to total assets for company *i* in year *t*. *SIZE_{it}* denotes natural logarithm of total assets for company *i* in year *t*. *CF_{it}* is the cash flow from operations for company *i* in year *t*. *ROA_{it}* stands for return on assets for the company *i* in year *t*. *ln TAC_{it}* is the natural logarithm of the total accruals in company *i* in year *t*. *FC_i* is a dummy variable coded to 1 if the company has recognized a goodwill impairment in years 2008–2009, and 0 otherwise.

In contravention to expected, the coefficient of *GW_IMP_{it}* is positive (0.001), but not statistically significant. The coefficient of *IMPAIR_{it}* (7.24E-6) is in line with the expected sign. The decision to recognize an impairment is to decrease when earnings are managed downwards. Moreover, the positive sign of the coefficient of *IMPAIR_{it}* implies that as earnings are managed downwards, the values of goodwill impairments increase. As the coefficients of these variables are not – together – in line with the expected and statistically significant, it seems that Finnish listed companies have not used goodwill impairments to deliberately manipulate earnings. Hence, we can reject H₁. The coefficient of *GW_INC_{it}* is negative in contravention to expected, and is not statistically significant. In line with expected, the sign of the amount of increased

goodwill (INC_{it}) is positive, but it is not statistically significant. The results suggest that as firms manage earnings downwards, the firm is more likely to have higher leverage (-0.005). However, LEV_{it} is not either statistically significant. As it was expected, firm size ($SIZE_{it}$) is negative implying that relatively smaller firms do manage earnings upwards. This variable is also statistically significant at $p < 0.001$ implying that it contributes well to the model. CF_{it} is negative (-7.81E-6) as expected denoting that decrease in cash flows is associated with earnings management actions. The coefficient is, however, very close to zero. Cash flow from operations is not statistically significant with p -value of 0.479. Firm performance (ROA_{it}) is supposed to indicate that firms with lower ROA are more prone to manage earnings downwards. The results do support this as the coefficient of ROA_{it} is positive (0.456). In addition, ROA_{it} is statistically significant. $lnTAC_{it}$ is positive as expected, and statistically significant. Hence, this is consistent with the argument that companies with high total accruals have higher discretionary accruals as well. The FC_i coefficient is negative (-0.007) implying that as earnings are managed downwards, more goodwill impairments are recognized during the financial crisis. This variable is not, however, statistically significant (0.678) so this may be coincidence. This implies that the null hypothesis H_2 is true.

7.3.2 Logistic regression

Table 7. Logistic regression results

Variables	Predicted	Coefficient	p -value	
<i>INTERCEPT</i>	?	-0.114	0.821	
<i>GW_IMP_{it}</i>	+	-0.784	0.019	*
<i>IMPAIR_{it}</i>	-	-0.001	0.380	
<i>GW_INC_{it}</i>	-	-0.738	0.015	*
<i>INC_{it}</i>	-	-0.008	0.454	
<i>LEV_{it}</i>	+	0.073	0.300	
<i>SIZE_{it}</i>	-	-0.334	0.003	**
<i>CF_{it}</i>	-	0.001	0.494	
<i>ROA_{it}</i>	-	-9.409	<0.001	***
<i>lnTAC_{it}</i>	+	0.205	0.042	*
<i>FC_i</i>	-	-0.131	0.779	
<i>Model summary</i>				
n	899			
Wald chi-square	383,037			
p -value	<0.001***			
-2 Loglikelihood	506,301			
Pseudo R ²	0.130			

Statistical (two-tailed) significance (p-values) better than 0.001, 0.01, and 0.05 indicated by ***, **, and * respectively.

The results of logistic regression analysis are presented in table 7. It can be seen that the model is highly significant ($p < 0.001$) and has a pseudo R^2 of 13.0 percent. The dependent variable, BIG_BATH_{it} is coded as 1 if the company is assumed to have engaged in big bath actions, and 0 otherwise. Thereby, the signs of the coefficient of independent variables indicate the direction of the effect on the likelihood of company to be engaged in big bath actions.

From table 7, it can be seen that the signs of the coefficients are not entirely in line with the expectations. The decision to impair goodwill (GW_IMP_{it}) is expected to increase as firms engage in big bath actions, but the coefficient (-0.784) is negative. This implies that the decisions to recognize a goodwill impairment are very likely to decrease when big bath actions increase. It must be taken into account that GW_IMP_{it} is statistically significant at level $p < 0.05$, which implies that firms are very likely to decrease the amount of impairments when they engage in big bath actions. In other words, as firms engage more in big bath actions, they do not use goodwill impairments to worsen net earnings. Firms are more likely to engage in big bath behavior by using other accruals, as can be noted from the coefficient of $lnTAC_{it}$ (0.205). The coefficient of the amount of goodwill impairment ($IMPAIR_{it}$) is negative (-0.001) as expected. However, $IMPAIR_{it}$ is not statistically significant. GW_INC_{it} is negative (-0.738) as expected and significant as well. This implies that firms are unlikely to acquire entities when they decide to take a bath, as the amount of goodwill does not increase. The signs of the coefficients of other variables – except CF_{it} – are in line with expectations. Firm size ($SIZE_{it}$) is negative (-0.334) and statistically significant implying that smaller firms engage in big bath actions. Furthermore, the results indicate that firm performance (ROA_{it}) is very negatively (-9.409) associated with big bath, and statistically significant at level $p < 0.001$. This implies that firms, which are about to report significantly lower earnings than others, are very likely to engage in big bath behavior. This seems to be very dominant factor in Finnish publicly quoted companies. Firms having higher (0.205) total accruals ($lnTAC_{it}$) are to use big bath as the variable is statistically significant. Finally, financial crisis (FC_i) is negatively associated (-0.131) as expected but not statistically significant. Hence, Finnish listed companies have not used goodwill impairments as an accrual-based big bath vehicle during the financial crisis.

7.4 Interpretation of results

In this subsection, the results of the regression analysis are interpreted and compared to the hypotheses presented in section 5. As it has been stated, this paper contributes to prior accounting literature due to the fact that although Finnish listed companies have been included

in many studies (for example, see André *et al.* 2015), the results regarding these companies have not been reported separately. An interesting issue is how the results of this paper are related to prior literature due to which the results of this study are reflected to the most similar studies currently available.

The results of OLS regression analysis suggest that Finnish listed companies have not been committed to impair goodwill as a purpose to deliberately manipulate earnings. In other words, Finnish companies have not used goodwill impairments as an accrual-based earnings management vehicle. Contrary to what was expected, the decision to impair goodwill (GW_IMP_{it}) as well as the amount of impaired goodwill ($IMPAIR_{it}$) are not statistically significant in the OLS regression model. Moreover, the coefficients of these variables are not entirely in line with expected. As the discretionary accruals are used as a proxy for earnings manipulation, the results show that Finnish listed companies have not used goodwill impairments to – in general – manipulate earnings. Moreover, the results of logistic regression analysis show that both GW_IMP_{it} and $IMPAIR_{it}$ are negatively associated with big bath actions, and statistically significant. Based on these, it can be stated that the findings do not support H₁. On the contrary, the logistic regression results suggest that firms take baths by using other accruals, not goodwill impairments.

To support the rejection of H₁, Finnish listed companies had recognized goodwill amortizations substantially more prior to the adoption of IFRS standards than subsequently. It must be taken into account, however, that those amortizations were recognized on a straight-line basis. To some extent, it seems that Finnish listed companies have used the discretion permitted by IFRS not to recognize goodwill impairments. Not a single year's number of goodwill impairments corresponds with the number of goodwill amortizations recognized prior to the adoption year of IFRS standards. One reason might also be the *principle of prudence*. Prudence has been the bedrock of Finnish Accounting Act, and it seems to be that Finnish publicly quoted companies have applied this principle as they have not used goodwill impairments to manipulate earnings. The regression results indicate that the only factors which are statistically significant and thus contribute well to the regression model are firm size $SIZE_{it}$, ROA_{it} and total accruals $lnTAC_{it}$. Given these, it seems that relatively smaller firms are more likely to manage earnings upwards. However, firms are likely to be smaller if they take baths. Moreover, logistic regression results suggest, in addition to aforementioned, that firm performance (ROA_{it}) is very negatively associated with big bath actions, and statistically significant. This implies that firms with very low performance are likely to engage in big bath behavior. This seems to be really dominant

variable to affect big bath behavior. Firms having larger total accruals are – obviously – more likely to manage earnings. Total accruals being statistically significant seems logical as earnings management actions are to increase when the value of total accruals increase, *ceteris paribus*.

The goodwill impairments recognized during the financial crisis years are negatively associated with earnings management actions in general. This implies that as firms manage earnings downwards, more goodwill impairments are recognized. However, FC_i is not statistically significant with *p*-value of 0.678 implying that this may be coincidence. In other words, companies are less likely to use goodwill impairments to practice accrual-based earnings management during the crisis years. As the financial crisis dummy variable (FC_i) is not statistically significant – and the coefficient signs are not entirely in line with expected – this implies that goodwill impairments are not associated with earnings manipulation – including big bath actions. The number of goodwill impairments rose during the financial crisis years, but it does not necessarily indicate earnings management actions. As prudence is one of the most important principles in Finnish reporting environment, it is possible that more firms have recognized goodwill impairments due to uncertainty, thus applying the concept of prudence.

The findings of this paper are totally new and different from prior literature as they are not fully consistent with prior studies. For instance, Alves (2013) uses modified Jones model and by controlling some institutional factors (audit quality and board size), she finds that goodwill impairments are related to earnings management actions in Portuguese publicly quoted companies. Moreover, Bisogno (2015) documents that also Italian listed companies do use goodwill impairments to manipulate net earnings. Similar to Bisogno (2015), almost same estimation model with slight modifications is used in this paper, and the explanatory power of this paper is similar to Bisogno's (2015). Compared to a wide gamut of big bath accounting literature, the results of this paper are not in line with those. For example, Haman and Jubb (2007) examine Australian firms by using modified Jones model (Dechow *et al.* 1995) and find that some firms use goodwill impairments to take a bath. However, this paper documents no sign of using goodwill impairments as big bath actions.

7.5 Robustness checks

To test the validity of the results of this paper, four robustness checks are performed. The discretionary accruals are estimated as previously, using modified Jones model with additional

modifications. After this, the main tests of this paper are performed as follows: First, H_1 and H_2 are tested with a minor modification, that is, yearly changes in cash flows from operations are taken into consideration. Second, in addition to the first, corresponding regression analyses are performed excluding the outliers in INC_{it} (4,873.00) and CF_{it} (-2,153.00 and 5,320.00). These robustness check are performed in section (a). Third, in section (b), H_2 is retested by dividing the sample of this paper into sub-sample. Finally, in section (c), big bath behavior is re-examined by taking into consideration only companies with negative discretionary accruals.

(a) Additional robustness tests for H_1 and H_2

The estimation model used to examine whether goodwill impairments are associated with earnings management actions does not take into account the yearly changes in cash flows. However, it is important to take the yearly changes in cash flows into consideration as cash flows from operations may change substantially during the financial crisis years. As the cash flows may change drastically during crisis years, firms may be more prone to recognize impairments. In addition to taking yearly changes in cash flows into consideration, OLS regression is performed without the outlier in increased goodwill (4,873) and cash flow from operations (-2,153 and 5,320). Given these assumptions, the robustness check is performed with the following estimation model:

$$\begin{aligned} \varepsilon_{it} = & \alpha + \alpha_1 GW_IMP_{it} + \alpha_2 IMPAIR_{it} + \alpha_3 GW_INC_{it} + \alpha_4 INC_{it} + \alpha_5 LEV_{it} + \alpha_6 SIZE_{it} + \quad (11) \\ & \alpha_7 CF_{it} + \alpha_8 \Delta CF_{it} + \alpha_9 ROA_{it} + \alpha_{10} \ln TAC_{it} + \alpha_{11} Y2005_i + \alpha_{12} Y2006_i + \alpha_{13} Y2007_i + \\ & \alpha_{14} Y2008_i + \alpha_{15} Y2009_i + \alpha_{16} Y2010_i + \alpha_{17} Y2011_i + \alpha_{18} Y2012_i + \alpha_{19} Y2013_i + \\ & \alpha_{20} Y2014_i \end{aligned}$$

where,

ΔCF_{it} Yearly changes in cash flow from operations for company i in year t

$Y2005_i-2014_i$ Dummy variables; coded to 1 if company i has recognized goodwill impairment in that certain year, and 0 otherwise.

All other variables are described earlier. Due to the multicollinearity problem with variables $Y2008_i$ and $Y2009_i$, the dummy variable FC has been removed. This is not necessary as the multicollinearity concerns can be discarded on dummy variables. The replacing variables, however, take into account the goodwill impairments during the financial crisis years.

The (untabulated) results – which apply to samples both including and excluding the outliers in the increased goodwill and cash flow from operations – indicate the same results as were

discovered in previous section. These results are not tabulated as they do not otherwise differ from the results of the main test of this paper. All variables indicate same kinds of results as the test performed in section 7.3.

(b) Additional robustness test for H₂

In order to examine whether the goodwill impairments are associated with earnings management actions during the financial crisis, the sample is divided into a sub-sample which takes into account only the financial crisis years. For this sample, the same test as in the first robustness test is performed.

The untabulated results of this regression analysis indicate that the explanatory power of this estimation model is higher than previously with R^2 (adjusted R^2) = 31.4 (28.2) per cent. The signs of the coefficients are robust to findings as are the statistically significant variables ($SIZE_{it}$) and ($lnTAC_{it}$) as well. Based on these findings, the robustness checks indicate that the findings of this paper are robust.

(c) Additional robustness test for big bath behavior

To test the validity of the results regarding big bath actions, the same logistic regression model is performed. However, only companies with negative discretionary accruals are taken into account. Thereby, we get more precise view whether companies, who have manipulated earnings downwards, have used goodwill impairments as big bath actions. The (untabulated) results indicate the same as was discovered. However, none of the goodwill impairment or goodwill increase variables were statistically significant. Hence, the interpretations are not altered, and the results are valid.

8. CONCLUSION

The purpose of this paper is to examine whether Finnish listed companies have used goodwill impairments – in general – to deliberately manipulate net earnings. However, this paper also examines whether these companies have been engaged in big bath actions. Finnish listed companies have been stipulated to compile their consolidated financial statements in accordance with IFRS since 2005. From this point of view, the topic is relevant as it is important to understand the consequences of the adoption of IFRS on the opportunities for earnings manipulation by exploiting goodwill impairments. IFRS standards have been criticized as they permit a lot of discretion for the managers. Goodwill – and thus goodwill impairments as well – are mostly determined by the management, which indicates that goodwill as an asset is indeed very vulnerable to earnings management actions. This paper contributes to prior accounting literature in three ways. First, although Finnish listed companies have been included in many studies (for example, see André *et al.* 2015), the results regarding these companies have not been reported separately. Second, standard setters need to know whether certain standards and accruals are vulnerable to earnings management. Given this, standard setters may be aware of this regarding Portuguese and Italian listed companies, but Finnish reporting environment brings another dimension to this. Third, as company's decision to impair goodwill or not seems to be an important corporate event due to the influence on firm performance and thus market value (Hirschey and Richardson, 2002), it is important to examine whether IFRS 3 and IAS 36 constrain the management's discretion to impair goodwill.

The sample of the data comprises 899 firm-year observations spanning from 2005–2014. In addition, the data are obtained also from the years 2000–2004 to document the number of goodwill amortizations. The purpose of this separate documentation is to examine whether the goodwill impairments recognized 2005–2014 differ substantially from the amortizations prior to the adoption of IFRS. To test the hypotheses of this paper, the discretionary accruals are first estimated by using modified Jones model. This paper documents that Finnish listed companies have been recognizing goodwill impairments less than amortizations prior to the mandatory adoption of IFRS. The results of the regression analysis demonstrate that goodwill impairments recognized during 2005–2014 are not associated with earnings manipulation in general, or with big bath actions. Moreover, the results illustrate that financial crisis affect negatively earnings manipulation from the point of view of goodwill impairments, and they are not associated with

accrual-based earnings management during the financial crisis. In addition to these results, four robustness tests are performed to assure the validity of the results.

The findings of this paper are not consistent with the results of Alves' (2013) or Bisogno's (2015). While they document that Portuguese and Italian companies – respectively – use goodwill impairments to manipulate earnings, Finnish companies do not seem to complement this view. Moreover, this paper documents opposite results to big bath literature (see Giacomino and Akers, 2009; Jordan and Clark, 2004) suggesting that Finnish listed companies have not been engaged in big bath behavior following the adoption of IFRS. In regards to financial crisis, this paper documents that Finnish listed companies did not use goodwill impairments as an accrual based earnings management. One possible reason for these observations might be *the principle of prudence*. This principle is the main principle of Finnish Accounting Act, and even though Finnish listed companies are to apply IFRS, the principle of prudence may have been the underlying factor in the accounting choices of companies. However, the findings of this paper support the view of Donnelly and Keys (2002) as well as Colquitt and Wilson (2002). They argue that goodwill impairment test better satisfies the underlying expectations of the analysts. Hence, as the goodwill impairments do not seem to be associated with earnings manipulation in Finland, goodwill impairments do seem to better capture the decline in the value of goodwill in a more meaningful manner than the amortization approach.

The findings of this paper have implications for both financial statements users and standard setters. As it has been discussed, financial statement users ought to take into consideration that many firms – both in Finland and internationally – have a practical earnings management vehicle, that is, goodwill, at their disposal on their balance sheets. For financial statement users, there might exist a reason to consider for the possible misrepresentation of earnings if the company has a significant balance sheet value of goodwill. As it turns out, however, the reporting environment seems to affect earnings management actions. For instance, Italian listed firms seem to manipulate their net earnings through goodwill impairments (Bisogno, 2015), but Italian reporting environment differ from the Finnish one. Finnish companies are to apply the principle of prudence which presumably affects the results – even though IFRS regulation is same cross-nationally. Standard-setters ought to take these variations regarding the reporting environments into consideration. The results of this paper, Alves' (2013) and Bisogno's (2015) illustrate that even though the standards (IFRS) are the same cross-nationally, they might not be applied in same manner internationally.

The major limitation of this paper is that it focuses on whether Finnish listed companies have used goodwill impairments as an accrual-based earnings management vehicle, and whether there are indications of big bath behavior. It does not take into account whether the companies are smoothing, minimizing or maximizing earnings, and thus avoiding goodwill impairments. Moreover, it does not take into consideration whether institutional factors affect the earnings management actions. This paper focuses on all listed firms in Finland, not only ones that recognize goodwill impairments. Given this, it must be emphasized that this paper is consciously focusing on Finnish listed companies in general. It is good to acknowledge that if only companies which recognize goodwill impairments are taken into account, the results might be different. In addition, focused this paper on certain industry, the results might be different as well. The findings of this paper cannot be generalized as they only apply to Finnish listed companies in a certain period of time.

There is probably a plethora of paths to continue beyond this study, but this study could be complemented with a couple of paths. First, it would be eminently interesting to examine to what extent Finnish listed companies use goodwill impairments to income smoothing, income maximizing, and income minimizing. Moreover, it would be worthwhile to investigate these factors by taking into consideration different industries. Second, institutional factors affecting goodwill impairment recognitions would be an important target of examination. This kind of a study ought to be, however, conducted by examining cross-national firms. By taking into account several institutional factors, such as shareholder protection, growth rate of the economy, financial tax-alignment, spending on auditing, accrual index, etc. we would gain a more comprehensive understanding of the factors which in reality affect the decisions to impair goodwill.

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