Goodwill impairments and earnings management:
10 years after IFRS 3

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Abstract:

Goodwill impairments have been argued to provide management with an incentive to engage in earnings management. This thesis investigates possible signs of earnings management through goodwill impairments using a logit regression and if the size of the impairment is influenced by earnings management. Further this thesis will evaluate the prediction power of the logit regression in its ability to predict impairments.

The treatment of goodwill experienced a significant change in early and mid-2000 in both the US framework (SFAS) and the international framework (IFRS/IAS). With the introduction of SFAS 142 and IFRS 3 respectively goodwill shifted from a yearly amortization treatment to only allowing impairment when conditions are met.

Goodwill impairments were regressed on variables that signal legitimate impairments and variables that signal possible earnings management. The logit regression is used to estimate whether certain situations contribute to management decisions to impair goodwill. The OLS regression is used to estimate the impact certain have factors have on the size of the goodwill impairment expense. The sample consisted of 435 observations from 87 Finnish listed companies during the period 2015-2019.

Keywords: earnings management, goodwill impairment, IFRS 3

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1.Introduction

Financial statements are important tools used by stakeholders, when making decisions regarding investment, lending, and other business opportunities (Clatworthy and Jones 2008; Saastamoinen, Ojala, Pajunen and Troberg 2018). The purpose of any accounting regulation is to provide a framework for how financial statements should be presented. The financial statement should give a representation of the company's financial state, presented in an acceptable way by containing all relevant information and disclosures. Financial regulation exists as both national or local regulations and international regulations.

The primary objective of the Finnish national accounting regulation (FAS) is providing stakeholders a true and fair view of the company's financial situation. The International Financial Reporting Standards (IFRS/IAS) and Statement of financial Accounting Standards (SFAS), the reporting standards in the United States, take a slightly different approach to the objective of financial reporting: calling for high quality, transparent and comparable information in financial statements and other financial reporting. Despite the different wording between FAS, IFRS and SFAS, they have the same objective: stakeholders can make informed decisions based on the financial reports.

Certain items on a financial statement are difficult to verify objectively. A good example is goodwill. Goodwill represents the "overprice" paid for acquiring an organisation or a business (Higson 1998). Goodwill used to be an asset subject to amortization until the early and mid-2000's. In early and mid-2000's both the international financial reporting standards (IFRS/IAS) and United States financial reporting standards (SFAS) changed the accounting treatment from an asset that is amortized over a set time to an asset with an indefinite useful life. This lead to the possibility of goodwill remaining on the balance sheet indefinitely.

The change to impairment-only, created a debate over, whether this improves the information value investors receive from goodwill and whether it creates an opportunity for earnings management. Some researchers have found evidence of earnings management behavior (Saastamoinen and Pajunen 2013; Storå 2013;

Ramanna and Watts 2012). The change has also been called into question by accounting professionals (Huikku and Silvola 2012; Nevalainen 2011).

The purpose of this thesis is to examine whether quantitative signs of possible earnings management exist during the period 2015-2019 in Finnish listed companies. This thesis will follow the methodology used by Saastamoinen and Pajunen (2016), as their research was also conducted with Finnish listed companies, allowing for a partial replication of their study, and comparing two different time periods.

1.1 Background

The current definition of goodwill according to IFRS 3 and SFAS 142, is the surplus paid in the acquisition of a business. Goodwill is currently classified as an intangible asset. The abstract nature of goodwill presents a problem on how it should be accounted for. The topic has been debated by both researchers and industry professionals (Stenheim and Madsen 2016). The definition of an intangible asset, according to the IFRS/IAS framework, is given in IAS 38. IAS 38:8 defines an asset as a resource controlled by an entity because of past activities and the entity can expect future economic benefit from the resource. Goodwill does arise from past events and is also controlled by the entity. Goodwill is based on positive future expectations (Maruszewska Maruszewska, Strojek-Filius and Pospisil 2019; Hamberg et al 2011). Glaum, Landsman and Wyrwa (2015) explain that unlike most assets, goodwill is firmly attached to a specific business and cannot be sold separately on an open market.

The introductions of SFAS 142 *Goodwill and other intangible assets* by the Financial Accounting Standards Board (FASB) in the USA and IFRS 3 *Business Combinations* by International Accounting Standards Board (IASB), changed the treatment of acquired goodwill from the previous amortization model to a model, where goodwill is not amortized, but annually tested for impairment. The treatment of goodwill is a debated topic within the field of accounting. Goodwill is not a new, but is still creating debate among researchers. Weise (2005) notes that there have been two periods where the debate has been more intense. One in the early 1990's and the second in early 2000's (Wiese 2000). Weise (2005) raise an interesting point that the IASB included

in the previous standard IAS 22 *Business combinations.* IAS 22 did not allow companies to make impairments to acquired goodwill immediately after the purchase. This restriction was lifted with the introduction of IFRS 3. Following the introduction of both SFAS 142 and IFRS 3, researchers have been debating, whether the move from amortization to impairment-only, has influenced both information value of goodwill and whether it opened a door for earnings management.

Maruszewska et al (2019) note, that there has been a lack of unified definition and treatment of goodwill. This might cause problems for harmonization across countries when IFRS is adopted by companies (Maruszewska et al 2019). Stenheim and Madsen (2016) note, that there have been difficulties with finding a consistent method for how goodwill should be accounted for.

The original intent for the shift from amortization to impairment-only, was to increase the information value of goodwill. The argument for this shift was, that an amortized goodwill does not give investors sufficient information about future earnings potential (Weise 2005). Complementing this argument, is the difficult task of estimating a useful life for goodwill. Thus, an impairment-only method would better signal management's estimation of future expected earnings (Weise 2005). If goodwill is not impaired, stakeholders can be confident in future expected earnings (Weise 2005).

Nevalainen (2010) states that if the industry has a history of difficulties to predict the future, one might question whether the current goodwill impairment calculations are reasonable and trustworthy. In a stable industry with predictable growth, the entity should be able to make a reasonable prediction. Thus, the nature of the industry will determine how goodwill is treated.

One problem is also generated directly from the IAS/IFRS framework, IAS 36 presents up cash-generating units as one alternative on which to conduct impairment testing. IAS 36:6 defines a cash-generating unit as the smallest identifiable group of assets, that generates inflow of cash and is independent. Researchers and accounting experts have debated on how far a company should drill down when defining a cash-generating unit. At what level can you conclude that the cash-generating unit is small enough, and

not dependent on other asset groups? This is up to management to decide and relies on their knowledge and judgement.

Nevalainen (2011) discusses the problems with cash-generating units and the problem they pose when testing goodwill for impairment. The problem is illustrated with an example: A vessel operator acquires another operator and a shipping line on which two ships operate sharing the support functions (Nevalainen 2011). Nevalainen (2011) asks the question: how should the operator allocate the goodwill? The two ships could be treated as two separate cash-generating units and split the support functions or as one unit together with the support functions. The example is set in the hypothetical situation where one of the ships is profitable and the other is not, but both ships together generate an inflow of cash. The company would be forced to charge an impairment to one of the ships when they are treated as separate, unless the estimated market price for the ship is higher than the current carrying value. When both ships are treated as one cash-generating unit, no impairment charge would be necessary. Both alternatives can be considered appropriate. The purpose of the example is to illustrate the difficulty of impairment testing. One person may see the ships and the land support units as one whole cash generating unit, another may see the three as separate units.

1.2 Problem

The effects of SFAS 142 have been examined extensively in the United States. The effects of IFRS 3 have also been studied, but to a lesser extent. Previous research has focused both on the changes in value relevance of goodwill and on possible earnings management behavior. As stated in chapter 1.1, the original intent for this shift was to increase the information value given by goodwill. An argument raised in favour of impairment-only was the difficult task of setting a reasonable useful life for something as subjective as goodwill.

The problems with goodwill are its subjectivity and the uncertainty of future events. The impairment testing for goodwill is dependent on how the future is perceived (Nevalainen 2010). This, coupled with the discretion that management is afforded

under the current framework, creates a problem if management decides to act opportunistically (Storå 2013). The old framework was not without its flaws either (Hassine and Jillani 2017). Defining a useful life for goodwill can also be argued to rely too much on management judgement and discretion (Hassine and Jillani 2017). The impairment-only approach may give a better representation of the goodwill's useful life or the overall economic circumstances in some cases (Chalmers, Godfrey and Webster 2011).

Weise (2005) explains that the initial recognition of goodwill is recognized at cost. This recognition is based on an arbitrary calculation on the current estimated fair value of the acquired assets and management's expectation of abnormal future earnings. The impairment-only model could potentially give management the opportunity to mislead stakeholders by timing the impairments (Weise (2005). Whether management decided to act this way, stakeholders would make decisions based on misinformation.

Giving management discretion in both recognition and impairment testing is the easiest solution. It would be difficult to design a framework that specific and applicable in multiple situations. This would allow management to develop an appropriate industry or entity specific testing method (Chalmers et al 2011). It does, however, give management the opportunity to develop a method that may only serve management's short-term goals (Storå 2013).

Previous research has found that the treatment of goodwill changed after the move to impairment-only (Caruso, Ferrari and Pisano 2016; Hamberg, Paananen and Novak 2011). This is logical considering the drastic change in accounting fundamentals. The central question is whether this change helped companies convey the anticipated earnings generated from acquired businesses or whether this is used opportunistically to maximize rewards? Cheng, Peterson and Cherill (2017) note, that incentives for management to recognize a goodwill impairment shortly after a business acquisition exist. Impairment may be recognized to improve certain performance metrics in the future. Examples of performance metrics include return on assets and return on equity. Cheng et al (2017) find evidence that suggests possible big bath earnings management taking place after a business acquisition. Hamberg et al (2011) report on companies with substantial amounts of goodwill also experiencing an abnormal increase in

earnings when IFRS 3 was adopted. This is a logical change due to periodic amortization disappearing.

Previous research has addressed upwards earnings management or delay of impairment (Storå 2013; Ramanna and Watts 2012) and downwards earnings management (Saastamoinen and Pajunen 2016, Hassin and Jillani 2016; Storå 2013; Stenheim and Madsen 2016). The above-mentioned research has been conducted with data from 2005-2009 and reports signs of possible earnings management.

As previous research has focused on the period immediately before and after the introductions of goodwill (Storå 2013; Ramanna and Watts 2012; Saastamoinen and Pajunen 2016, Hassin and Jillani 2016; Storå 2013; Stenheim and Madsen 2016), it can be argued that a different period should be explored. A possibility not addressed by previous research, is that earlier signs of earnings management may have been the result of companies and auditors learning the new standards. Few studies since, have been conducted with alternative datasets. Thus, this thesis will add to the existing literature with data from 2015-2019. IFRS3 was introduced in 2005, which was also the year when IFRS reporting became mandatory for listed companies in the EU. The results from this study will be compared with those studies and other previous studies to compare whether quantitative signs have changed. By adopting a later period and comparing results, this thesis will attempt to understand whether the earlier signs could have been due to unfamiliarity with the new standard.

Lemans (2010) notes that the nature of goodwill impairment testing requires management to take many factors into consideration. Many of these factors are based on assumptions and are difficult to verify objectively (Lemans 2010). Kim, Lee and Wook (2013) argue that the introduction of SFAS 142 might create a situation, where accounting earnings do not reflect economic earnings in a timely manner. This could be interpreted as a risk of impairments being reported at the wrong time. Hamberg et al (2011) suggest that investors might miss this lag which might create further incentives for management. Hamberg et al (2011) also note, that investors appeared to value goodwill-intensive companies more after the adoption of IFRS 3. Hamberg et al (2011) report, that they found weak evidence, that management with a long tenure and companies with substantial amounts of goodwill, are more reluctant to make

impairment charges to goodwill. Saastamoinen and Pajunen (2016) have found evidence of possible earnings management occurring, when a new CEO is appointed or when results would have been negative regardless. Similar results are reported by Hassine and Jillani (2017). Stenheim and Madsen (2016) find evidence of companies recognizing larger impairment losses when pre-impairment earnings were already negative, thus suggesting possible big bath activities.

1.3 Purpose of the study

This thesis searches for quantitative signs of companies engaging in earnings management through goodwill impairment in a Finnish setting. This thesis will use the same regression models used by Saastamoinen and Pajunen (2016) who conducted the study that this thesis will be based on. The requirement of management using the impairment-only framework as a new gateway for earnings management has been covered quite extensively in the time following the introduction of IFRS 3 and SFAS 142. This thesis will switch the period from 2005-2009 that Saastamoinen and Pajunen focused on, to 2015-2019. Expectations will be based on results found in previous research. This thesis will assume that in 10 years some changes will have happened, and some have remained the same.

The methodology and theories used in the thesis will be built on findings from previous studies on the subject and asks the following research questions (RQ1, RQ2 and RQ3):

RQ1: *Do signs of earnings management behavior through goodwill impairments exist?*
RQ2: *If so, how are earnings managed and in what situations*? *How has this changed from earlier?*
RQ3: *How well can the logit model overall predict goodwill impairments occurring?*

RQ1 and RQ2 are inspired by previous research both from their research questions but also their results. Caruso et al (2016) worded their research question similarly but focused on whether there were signs of earnings management behavior and what these were. Caruso et al (2016) focused on the years following an acquisition and possible

impairments occurring during that time. Lemans (2010) also asked similar questions with a more general focus on earnings management through goodwill impairment.
RQ3 is motivated by the fact that one of the models is a logistic regression that has a binary category for the dependent variable. Saastamoinen and Pajunen (2016) model examine the individual variables contribution to a given binary outcome. In addition to this it would be interesting to also test the overall prediction power of the model to predict a goodwill impairment occurring. As the model by used Saastamoinen and Pajunen (2016) contains variables that are assumed to contribute to impairments occurring they should as a collective give a good prediction power. Ohsaki, Wang, Matsuda, Katagiri, Watanabe and Ralescu (2017) note that in a logistic model with a binary outcome and uneven amounts of the two outcomes, emphasis is placed on the model's ability to identify and predict anomalies. In the results reported by Saastamoinen and Pajunen (2016) goodwill impairments are anomalies as the data is mostly consisted of non-impairments. This thesis assumes that most observations will be non-impairments and impairments will be treated as anomalies. Thus, emphasis will be placed on correctly identifying impairments.

1.4 Limitations of the study

This thesis will examine goodwill impairment from the perspective of the IFRS/IAS framework and a Finnish setting. The sample is thus limited to companies that have their headquarters in Finland and are listed in the Helsinki stock exchange. The thesis will draw inspiration from research that was conducted in other geographical settings or on companies that follow a different accounting regulation, primarily United Stated based research, but will not make a deep commentary on differences in findings. Deep commentary on similar or different findings will be focused on previous research that was conducted regarding IFRS related research. The reason for including United States based research is due to the United States also following an impairment-only approach to goodwill. The thesis will also exclude the banking sector, due to different legislation and supervision structure. The thesis is not a complete examination of earnings management and takes a narrow perspective of only goodwill impairment as the means of earnings management.

2. Theoretical framework

2.1 Definition of Goodwill and Business combinations according to IFRS 3 and Academics

IFRS 3 introduced a new way for companies to account for business combinations and the goodwill that might arise from it. IFRS 3:2 outlines the scope of the standard by stating that joint arrangements, purchase of assets that cannot be considered a business and entities under common control are not applicable. IFRS 3:4 states that the acquisition method is to be applied to all business combinations. This has been noted by several researchers, and the fact that IFRS 3 forbids the "pooling of interests" method allowed by IAS 22. IFRS 3:6 states that one of the parties in a business combination needs to be identified as the acquirer and assume the responsibilities of the acquirer. These are: determining an acquisition date, recognizing and measuring identifiable assets acquired, liabilities assumed, and any non-controlling interest. The acquirer must also recognize and measure the goodwill that may arise from the transaction.

Goodwill is the term given to a difference between the price paid for acquiring a business and the value of the assets possessed by the business (Higson 1998). The IFRS/IAS framework defines goodwill as either the excess of overpayment in relation to the identified net assets at fair value, or the bargain received in relation to net assets (IFRS 3:32). IFRS 3 states that when goodwill is positive i. e., the acquirer paid an excess amount; this amount shall be recognized as an intangible asset. If the goodwill is negative i. e., a bargain purchase, this shall not be recognized on the balance sheet but as a gain in the statement of profit and loss.

Hamberg et al (2011) explain that the positive goodwill is recognized and capitalized as the company expects excess future cash flow from either the acquired entity itself or from the fact that the two companies merged. A similar explanation is given by Maruszewska et al (2019). Giner and Pardo (2015) explain that goodwill represents

something that is not captured by the financial statements. Historically, three different options have been accepted, as to how to deal with goodwill once recognized (Giner and Pardo 2015). First option is to charge all to profit and loss, the second option is to write it off or amortize it under a determined period and the third option is to subject it to annual impairment testing (Giner and Pardo 2015). Charging goodwill to profit and loss is the currently accepted method for negative goodwill or bargain purchases. The currently accepted method for positive goodwill is to subject it to annual impairment testing.

A distinction between internally-generated goodwill and acquired goodwill is important. Both acquired goodwill and internally-generated goodwill could be of a similar nature, e. g. a brand name. Accounting regulations do not, however, recognize internally generated goodwill at all, and only offer a framework for acquired goodwill. The reason for this is based on the ability to verify goodwill that is presented on the balance sheet (Hamberg et al 2011). Hamberg et al (2011) explain that acquired goodwill is deemed more reliable since it arises from a transaction on a market, where some of the price paid can be directly attributed to acquired assets and the rest to goodwill. An internally-generated goodwill has no reference point of an open market transaction and affords the management too much discretion.

2.2 Impairment testing

IAS 36 *Impairment of Assets* determines how a company should test assets for impairment. According to IAS 36:8, an asset is considered impaired when the carrying amount i. e., the amount on the balance sheet, exceeds its recoverable amount. IAS 36:9 states that a company shall assess whether an asset may be impaired at the end of each reporting period. IAS 36:12 lists the minimum criteria's to be considered when conducting impairment testing. The criteria are external observable indications of a decrease in value, e. g. significant changes that will adversely affect the company. Common examples include increases in market interest rates, changes in the legal environment or new technologies. The company shall also assess whether any of these changes are expected to occur within one to five years.

IAS 36:6 defines a recoverable amount as the higher value of either, its estimated fair value, subtracted by the cost of disposal or its value in use. IAS 36:19 states that the company is not required to measure both. When either value exceeds the carrying amount, the asset is not considered impaired. IAS 36:24 states that the impairment testing should, when possible, be conducted on an individual asset, or the cash-generating unit, of which the asset is a part.

Since goodwill cannot be sold separately, the method of estimating the assets fair value, subtracted by the cost of disposal, cannot be used. Thus, estimating the assets value in use is the only alternative. According to IAS 36:30, this can be done by estimating future cash flow that the company expects from its acquisition, with estimates on changes and timing to the cash flows and applying an appropriate discount rate. The estimate of cash flow amounts and the discount rate are based on management's best estimate.

Avallone and Quagli (2015) find that long term growth rate is an important variable in impairment tests, especially when avoiding write-offs. This is due to the information asymmetry between managers and stakeholders. Mangers could potentially use the discretion afforded and signal a growth rate that may not be consistent with the data used, but which follows the narrative that management wishes to express. (Avallone and Quagli 2015). Additionally, previous research shows that the amount of goodwill write-offs is negatively related to profitability and positively related to the book value of goodwill (Avallone and Quagli 2015).

Karampinis and Hevas (2014) report that their findings suggest that impairments on tangible assets are significant predictors of future cash flows. Impairment of goodwill also offers some predictive power of future cash flows, but to a lesser extent. It should be noted that IAS 36 calls for different treatment of tangible assets with a limited economic life and intangible assets with an indeterminable economic life such as goodwill. IAS 36 states that tangible assets should be tested for impairment, only when management identifies factors that suggest the asset may be impaired. Goodwill and other intangible assets with an indeterminable economic life should be tested annually regardless. Previous researchers have argued that the asymmetric treatment of impairments among different asset-classes in IAS 36 might reduce the reliability of

goodwill impairments, but instead improve their timeliness (Karampinis and Hevas 2014).

2.2.1 Criticism towards impairment testing only

Li and Sloan (2017) find evidence of inflated goodwill balances and untimely impairments and question, whether SFAS 142 has achieved it's objective of improving financial reporting accuracy. Hassine and Jilani (2017) note, that the introduction of IFRS 3 and the shift to an impairment-only approach has been criticized as it gives managers more room to exercise discretion. Thus, giving managers more room to engage in earnings management and biased reporting. Hassine and Jilani (2017) state that goodwill has an indefinite useful life after the shift. Prior to IFRS 3 and SFAS 142, goodwill had a definite useful life and was amortized.

According to Hassine and Jilani (2017), critics have pushed the IASB to re-implement IFRS 3, as they question if IFRS 3 is functioning as originally intended. Simultaneously Hassine and Jilani (2017) note that the previous amortization model has also been criticized for not reflecting the true value of recognized goodwill and thus the company.

Ramanna and Watts (2012) criticize SFAS 142 and argue that it has had the opposite effect. Since the current goodwill balances are valued their value in use, misstatements are difficult to detect. This leads to reliance on the honesty of management (Ramanna and Watts 2012). In certain scenarios management will have strong incentives to act against stakeholder interest. Goodwill balances also appear inflated after the introduction of SFAS 142 (Ramanna and Watts 2012). Furthermore, investors and officials appear oblivious to this inflation, which could lead to a rift between stock prices and the actual current and future financial situation of the company (Ramanna and Watts 2012).

2.2.2. Discussing the criticism

As noted by Hassine and Jillani (2017), the old framework is not free from criticism. The amortization period is also dependant on management judgement. This judgement may not reflect the actual useful life of the goodwill at all (Hassine and Jillani 2017). An argument could be made that the amortization is even less reliable than the new framework as the amortization is just an arbitrary annual expense. The amortization framework will ,however, discourage large goodwill balances due to increased expenses. Thus, the old framework encouraged a more conservative approach to reporting goodwill balances. Hamberg et al (2011) notes that the useful life allowed by different accounting frameworks differed, United States regulation prior to SFAS 142 allowed up to 40 years of useful life and IAS 22 allowed up to 20.

What is important to keep in mind is that impairment testing on goodwill was not introduced with IFRS 3. IAS 36 existed before IFRS 3 and it requires management to identify assets that may be impaired and conduct impairment tests (IAS 36:7-12). After IFRS 3, IAS 36 was revised to reflect the new standard. Goodwill must now be tested for impairment annually even when no signs of impairment is observed. This was made in attempt to better reflect the actual useful life of goodwill which is for the most part unpredictable.

Inflated goodwill balances are criticized by Ramanna and Watts (2012). Alternatively, goodwill balances may have been understated during the amortization period. The previous approach may have encouraged excessive conservatisim in recognizing goodwill. Being conservative is generally not a bad in accounting as most national regulations follow the prudence principle. The prudence principle favours conservative reporting of earnings and asset value. The prudence principle, however, does not align with the current IFRS framework where the focus is on accuracy. IFRS does require conservatism in certain situations, but it does not promote conservatism, unlike many local regulations.

2.3 Earnings management

According to Healy and Wahlen (1999), accounting information is used by management to communicate with external stakeholders. They further explain that accounting standards should permit management to use their knowledge of the business and exercise their own judgement on the reporting methods and what information to convey. This can allow managers to convey certain key information and thus, increase the information value in financial statements, but gives management the option to report opportunistically and mislead stakeholders (Haley and Wahlen 1999).

Haley and Wahlen (1999) define earnings management as managers using judgement to either mislead stakeholders or to influence certain contractual outcomes that might depend on financial numbers. Many agree on the existence of earnings management, however, finding evidence to support the claim is difficult. Management applying judgement on a matter, may not constitute earnings management, even if it appears so at first glance (Haley and Wahlen 1999).

Caruso et al (2016) state that a universally accepted definition for earnings management does not exist, despite extensive research on the subject. Different forms of earnings management can be described with the colors black, grey, and white (Caruso et al 2016; Storå 2013). White earnings management is assumed to be beneficial, grey: opportunistic and black: harmful (Storå 2013). According to Caruso et al (2016), earnings management incentives often result in black earnings management. Black earnings management in this context would refer to malicious intent to mislead stakeholders or force a certain contractual outcome (Caruso et al 2016). Storå (2013) also mentions that based on the categories white, grey and black earnings management can be both good and bad.

Another way to categorize different forms of earnings management is in real earnings management and disclosure earnings management (Caruso et al 2016; Storå 2013). Real earnings management refers to choices made by managers that could potentially be harmful for the company in the medium and long term and is only focused on maximum short-term benefits. Real earnings management occurs when changes are made to operating activities, that cause changes in revenue, expenses, and available cash (Caruso et al 2016; Storå 2013). A common example of real earnings management

is excessive discounts to increase sales volume at the expense of profitability. Disclosure earnings management is management abusing the discretion afforded to them. Disclosure earnings management is conducted on financial statement items that depend on estimates and assumptions (Caruso et al 2016; Storå 2013). The typically described disclosure earnings management forms are: income smoothing, income maximization and big bath accounting. (Caruso et al 2016; Storå 2013).

2.3.1 Incentives behind earnings management

According to Storå (2013), organisations may have one or several incentives to engage in earnings management. Storå (2013) divides these into valuation incentives, contractual incentives, and regulatory incentives.

According to Barth (2000), investors represent a large stakeholder group for most companies and are probably the single largest group using its financial statements. Based on this, Storå (2013) states that valuation incentives would be the most common. Storå (2013) defines valuation incentives as management's desire to influence the value of the company. Research has found three distinct groups where valuation incentives for earnings management exist. These are: capital market transactions that depend on the value of the company, equity rights transactions and event-unrelated earnings management to affect the volatility of earnings or to achieve earnings targets (Storå 2013; Healy and Wahlen 1999).

Marquardt and Wiedman (2004) find evidence that companies about to issue equity, appear to prefer upwards earnings management by accelerating revenue recognition. Marquardt and Wiedman (2004) report on an opposite effect in a management buyout scenario. In the buyout scenario, management prefers downwards earnings management to reduce the share price before the purchase.

Companies will often have a multitude of contracts between them and stakeholders. These contracts will often have a selection of accounting numbers or ratios as benchmarks to determine the outcome. Previous research has found evidence of

earnings management occuring, when management compensation is tied to accounting numbers and ratios (Storå 2013). Earnings management may also occur to avoid triggering certain debt covenants (Storå 2013).

Regulatory incentives have been divided into two main groups (Storå 2013). One is industry specific regulation, and the other is general regulation. An example of industry specific earnings management could be a bank that manages earnings to match the required capital adequacy. An example of general earnings management could be taxation where a company might want to minimize their tax expense (Storå 2013).

According to Storå (2013), accounting standards could influence how a company would choose to engage in earnings management. This is due to accounting standards defining how much room managers have when engaging in earnings management. Relaxed standards give managers more room to choose between different options (Storå 2013).

2.3.2 Ways to detect earnings management

Measuring aggregate accruals is the most common method for detecting earnings management (Storå 2013). Measuring aggregate accruals has been criticized for its poor detection power, despite being the most common method. (Storå 2013). Alternatively, earnings management can be detected by targeting specific accruals. This method will allow the researcher a more direct measurement of the explanatory variables, and the method is well suited for accruals that are subject to a high degree of discretion (Storå 2013). The challenge is to distinguish between discretionary components and non-discretionary components to correctly detect earnings management. A third method is the distributional approach. This method is used to examine whether managers manage earnings to beat certain targets. The method groups earnings into groups and determines the number and distribution of earnings within a given interval (Storå 2013). Irregular distribution of earnings is often considered a sign of earnings management. However, the weakness of this model is that it does not provide an explanation on how the irregularities arise (Storå 2013).

Dechow, Sloan and Sweeney (1995) examine different ways to detect earnings management. A few problems with using discretionary accruals as the base for testing earnings management are identified. One problem is that some research models are too restrictive and lead to biased variables. It could be argued that most of the models fail to truly capture the discretionary part of accruals (Dechow et al 1995). Despite this, (Dechow et al 1995) state that accrual-based tests will generally reach satisfactory results in detecting earnings management. For detecting earnings management that occurs through goodwill impairment, testing discretionary accruals is the preferred method. Discretionary accruals are not used in the impairment testing itself but could be used to sell the overall narrative. By accelerating expenses through accruals, management can decrease earnings and thus justifying the impairment to stakeholders (Dechow et al 1995).

Discretionary accruals are, however, not the only way to capture earnings management. An alternative method to detect earnings management is examining changes in the organisation or its environment. One hypothesis often cited is the change in senior management (Saastamoinen and Pajunen 2016; Hassine and Jillani 2017; Sapkauskiene, Leitoniene and Vainiusiene 2016; Korosec, Jerman and Tominc 2016). New management is believed to have an incentive towards conducting a big bath in their first year, to set lower targets for the following years. Similarly, if the company has had a bad year, they may have an incentive to accelerate expenses since the year can be considered lost. This allows the company to set an easier target for next year.

2.3.3 Goodwill accounting as a form of earnings management

Literature on goodwill impairments can be viewed as a part of asset impairment literature (Storå 2013). The focus has usually revolved around the motivation behind the impairment and market reactions (Storå 2013). Some research found that changes in senior management is an important determining factor behind the decision to impair assets (Strong and Meyer 1987). Strong and Meyer (1987) report that it appears to be amplified when the new CEO is appointed from outside the company. Based on

empirical evidence, Saastamoinen and Pajunen (2016) argue, that companies with short CEO tenure, are more prone to big bath accounting due to a higher likelihood of management recognizing impairments. The argument assumes that newly appointed CEO's have incentives to engage in big bath accounting to set easier targets for coming years.

Previous research has also found signs of possible earnings management when pre-impairment earnings are negative. Saastamoinen and Pajunen (2016) find that the size of recognized goodwill impairments increases significantly, when pre-impairment earnings were negative. In this situation, it is an appealing alternative for management to impair goodwill and report the lowest possible earnings. This would allow management a fresh start with new expectations. Another situation is when pre-impairment earnings may have been above expectations. This is defined as income smoothing (Storå 2013). In this situation, management would use goodwill impairment to reduce earnings closer to the expected target, resulting in more manageable future targets

Caruso et al (2016) hypothesize that management might recognize excessive goodwill in an acquisition, when they anticipate personal benefits from it. Brown, Davis-Friday, Guler and Marquardt (2015) also argue that management might experience pressure to manage earnings during and immediately after an mergers and acquisitions process. The earnings management might be upwards or downwards depending on management objectives. Caruso et al (2016) discuss the possibility of deferring the cost of impairment, by having large and complex cash generating units, which will hide the underperformance of an acquired business. Alternatively, management may want to impair the acquired goodwill as soon as possible, to wipe the slate clean (Caruso et al 2016). Cheng, Peterson, and Sherrill (2017) suggest at the fact that an early impairment may benefit the stock performance of a company in the long run, thus creating an incentive for management, when their reward is tied to stock performance targets.

2.4 Agency theory

The subjective nature of goodwill and its inherent information asymmetry, creates a risk for opportunistic behavior. Agency theory has been referenced directly by some previous research (Saastamoinen and Pajunen 2016) and indirectly by some (Caruso et al 2016; Giner and Pardo 2015; Lemans 2010).

Eisenhardt (1989) notes that agency theory has been around for a long time. The origin of agency theory is the problem of risk sharing, where a principal enlists an agent to act on his or her behalf and take on some of the risk. One of the earliest mentions of this theory is by Jensen and Meckling (1976).

The problem is highlighted, especially when the parties involved have different desires or goals, different amounts of information and the principal is unable to reliably verify the behavior of the agent (Eisenhardt 1989). Jensen and Meckling (1976) argue, that when both parties in a principal-agent relationship are utility maximizers, it would be rational to expect the agent acting on his/her best interests rahter than the principals. The problems of the agency relationship can be somewhat alleviated by introducing incentives that will align the agent with the interests of the principal (Jensen and Meckling 1976).

Saastamoinen and Pajunen (2016) is referring to the agency theory as an agency conflict between principal stakeholders and management who act as the agent. The agent will utilize the information asymmetry to further his or her own goals at the expense of the principal (Saastamoinen and Pajunen 2016). If managers exercise their discretion in an opportunistic way, this could increase the asymmetry of information and reinforce the agency conflict (Saastamoinen and Pajunen 2016). Agency problems can occur in different forms. In the context of goodwill, it would most likely be an untimely impairment of goodwill. Kothari, Shu and Wysocki (2009) note, that management might choose to postpone bad news that would lead to a decrease in stock returns and thus engage in upwards management earnings. Cheng, Peterson and Sherrill (2017) suggest, that management might want to time their goodwill impairments during a time when other bad news would also be disclosed. Thus, alleviate the chock that comes from impairments.

Management could also use the goodwill impairment to create an intentional chock among stakeholders. The shock could reduce the share price, which would benefit management, if they had an acquisition of shares planned. In this scenario management would have the incentive to reduce the price to make the acquisition cheap. Another reason for management to reduce the price, is in the event of upcoming mergers and acquisitions. Depending on different relations may play a role in the upcoming mergers and acquisitions. Management may have incentives to lower the value of the company. Thus, make the acquisition cheaper for the acquiring company.

2.5 Signalling theory

Signalling theory is defined by Spence (1973) as a situation where information asymmetry exists between two parties. The party, with the information advantage, can choose how to convey the information through signals. The theory was originally designed to analyze labour market behavior, where job applicants are looking for ways to convince employers. Spence (2002) has in a later stage explained, that the theory was supposed to apply for a wide selection of markets. In many markets, participants will have access to unequal amounts of information (Spence 2002).

Conelly, Certo, Ireland and Reutzel (2011) define the two parties as sender and receiver, where the sender has the information advantage. Management will always be aware of certain qualities about the company, that is not observable to an outsider. Management can choose whether they want to convey this information or not (Conelly et al 2011).

A goodwill impairment would under ideal circumstances be a signal from management about decreased expectations for future earnings (Lhaopachan 2010; Bepari and Mollik 2017; AbuGhazaleh, Al-Hares and Roberts 2011). In this instance, management could use the discretion afforded, to convey information, that is not readily available in the financial statements. This would give stakeholders the signal, of the need for a reassessment. The reassessment would then have consequences for the company. Analysts might adjust their forecast, suppliers may allow more relaxed

or more stringent payment terms, investors might change their investment decision and banks may approve or decline loans.

The accounting narrative used by management is one form of signal theory. The narrative is an option that management can use to signal certain intentions or shine additional light on annual events. Prior research has according to Clatworthy and Jones (2003), found certain patterns that management usually follows. When performance exceeds expectation management tends to report more additional positive news and when performance is below expectation, management tends to do the opposite. Management may blame external factors beyond their control, when annual or quarterly results are below expectations. The basis is a self-serving human behavior (Clatworthy and Jones 2003). Clatworthy and Jones (2003) find support for the hypothesis that events during a financial year, does influence how the narrative is formed.

Sandell and Svensson (2017) offer insight into how management narrates goodwill impairments specifically. Sandell and Svensson (2017) argue that annual reports are a form of ongoing dialogue between the company and stakeholders. Similarly, goodwill impairments are not just numbers and estimations, but also a rhetorical practice by management.

3. Prior research

3.1 IFRS research on goodwill earnings management

Saastamoinen and Pajunen (2016) examine how the stock market and management discretion affect goodwill impairment decisions after the switch to IFRS 3. The research is based on Finnish data. The authors note that Finland has a small capital market, when compared to most countries, but is still part of the continental accounting cluster and applies IFRS. To conduct the research, the authors developed five hypotheses to test. The first: a change in CEO will increase the probability of a goodwill impairment. The second: a company will recognize goodwill impairment if reported earnings would have been negative regardless and that the impairment in this

situation is larger than usual. The third: a compensation plan tied to stock performance will decrease the probability of goodwill impairment. The fourth: stock market monitoring functions will reduce information asymmetry. The fifth: the market rate of equity reflects a goodwill impairment in advance. Saastamoinen and Pajunen (2016) use a logit model to examine management decisions to impair goodwill and an OLS model to estimate the size of impairment. The authors find evidence for the first, the fourth and the fifth hypothesis. The sample for the research is selected from the Helsinki stock exchange between the years 2005-2009. The authors report, that the stock market reduces the problem of asymmetric information regarding goodwill. Another finding is, that the market value appears to consider goodwill impairments ahead of time.

Sapkauskiene et al (2016) examine disclosure of goodwill impairments in the Baltic states. The authors aim to examine what factors drive the impairment decision and impairment amount among companies listed in the Baltic stock exchange between 2005-2013. The authors argue based on findings from previous research that in certain scenarios, earnings management through goodwill impairment is more likely to occur. The authors provide five hypotheses: one: companies that have experienced a change in senior management are more likely to recognize an impairment and a larger impairment at that, two: companies that have a negative result for the period, are more likely to recognize goodwill impairments and larger in size, three: companies with higher earnings, are less likely to recognize impairment and the impairment will be smaller, four: large companies are more likely to recognize goodwill impairments, five: companies are more likely to recognize goodwill impairments during an economic crisis. Sapkauskiene et al (2016) use a logit regression to examine the relationship between different regressors and the impairment decision. A linear regression is used to examine the relationship between the selected regressors and the impairment amount. The authors report that the first and the fifth hypotheses are accepted, regarding the decision to impairment decisions. For the impairment amount, hypothesis one and hypothesis two are accepted. This, according to the authors, is a sign of possible earnings management occurring during management changes and when earnings are below expectations.

Giner and Pardo (2015) examine the ethical behavior of managers that make goodwill impairment decisions in a Spanish setting. The authors present the discretion afforded to managers as a central key ethical issue. According to the authors, prior research has found that opportunistic behavior tends to occur during an economic crisis. A country's institutions and culture will affect management behavior. They will also affect decisions on goodwill impairment charges and possible earnings management behavior. The focus is on how the Spanish capital market, enforcement regime and other factors affect impairment decisions made by Spanish listed companies. Giner and Pardo (2015) mention, that previous research on Spanish companies conclude, that they have been engaging in earnings management. The authors are interested in the decision to record an impairment and whether managers use excess discretion for the amount that is charged. The hypotheses of the paper are the following: a significant association between the level of debt and the impairment decision, a significant positive association between abnormally pre-impairment earnings and the impairment decision and a significant positive association between abnormally high pre-impairment earnings and the impairment decision. The authors use a probit regression to assess the probability for the impairment decision and an OLS regression for the amount that was subjected to the impairment charge. The regressions control for the underlying economic factors that would affect impairment decisions. The authors report that managers do exercise discretion when reporting goodwill impairment. Managers tend to report goodwill impairment on bad years, which would suggest big bath accounting, but are also prefer a consistent earnings development, which would also suggest income smoothing. The macroeconomic situation and company size are also important factors driving goodwill impairment decisions.

Caruso et al (2016) aim to understand whether managerial behavior on treating goodwill has changed after the adoption of the current IFRS/IAS. The authors examine whether goodwill impairment is used as a tool for earnings management and which practices are used. The research is conducted on Italian-listed companies and focuses on those, which have substantial amounts of goodwill and have completed a mergers and acquisition transaction during the chosen period. The authors developed the following hypothesis: in the year of a deal's closure or in the following four years the management will recognize an annual impairment of goodwill either over 20 % or below 10% of its initial value. The authors speculate that when a goodwill impairment

is recognized close after a completed mergers and acquisition transaction and is large, it could signal that the original value was excessive. Furthermore, management may have been aware of this. Management may also have had other incentives to pay a large premium. Alternatively, there could also have been other scenarios that might have led to impairment charges. The authors report that their hypothesis was confirmed in 91 % of the observations. The hypothesis for impairments for 20 % or more was confirmed for 13% of the observations and impairments of 10% or less was confirmed for 78% of all observations. The authors proceed to test for signs of typical earnings management practices by implementing controls to isolate signs of certain earnings management practices. The authors report they found no clear evidence of earnings management behavior; they did, however, find evidence of a changed behavior among management after the adoption of the latest IFRS/IAS framework.

Lemans (2010) aims to examine whether managers of Dutch listed companies use goodwill impairments as earnings management. The author focuses on big bath accounting and income smoothing through goodwill impairments. The first hypothesis is, that companies are more likely to report goodwill impairments if their earnings are lower than expected. The second hypothesis is, that companies are more likely to recognize a goodwill impairment when earnings are higher than expected and the third hypothesis is, that companies that experience a change of CEO, will record a larger goodwill impairment loss. The author uses two models developed by Van de Poel, Maijoor and Vanstraelen (2008), which are adjusted for this research. The first model is supposed to capture the impairment decision of companies and the second model captures the amount. The sample of the research are Dutch listed companies. The author reports that hypothesis two of income smoothing is confirmed, which is reported to be consistent with previous research. Hypotheses one and three are, however, rejected as no significant evidence is yielded by the regression models.

Hassine and Jilani (2017) aim to examine how reporting incentives influence accounting choices made, when using IAS 36 for goodwill impairment. The authors are interested in, when earnings management incentives are associated with impairment decisions and impairment amounts in a French setting. Hassine and Jilani (2017) note, like many others, that IFRS 3 fundamentally changed the treatment of goodwill and gives managers more room to exercise discretion. The research has three

hypotheses. The first hypothesis is that changes in senior management lead to a larger annual impairment loss for goodwill. The second hypothesis is, that companies with higher leverage, will record lower goodwill losses annually. The third hypothesis is, that companies where the CEO's bonus is a large part of the overall compensation, will record lower impairments. The authors report that companies experiencing changes in CEO are more likely to record a goodwill impairment loss, confirming the first hypothesis. The two other hypotheses are not supported.

Stenheim and Madsen (2016) examine the association between economic impairment, goodwill impairment, and corporate governance mechanisms. The authors are interested in, whether economic impairments affect goodwill impairment decisions, more than earnings management incentives, and how corporate governance could influence that. Stenheim and Madsen (2016) have two hypotheses in their paper. The first hypothesis is: a cash-bonus payment system for senior management, debt covenant incentives and big bath incentives are negatively associated with impairment decisions and amounts. The second hypothesis: income smoothing incentives, changes in senior management and firm size are all positively associated with impairment decisions and amounts. The researchers select British listed companies as their sample and 2004 to 2009 their period. Stenheim and Madsen (2016) report, that cash-bonus payments are positively associated with impairment decisions and amounts. This finding contradicts their initial expectations. They also report that companies whose pre-impairment earnings were already negative, report significantly larger impairments. The finding suggests at possible big bath activity. They found no significant evidence of management changes increasing the frequency and amount of impairment charges. The finding is inconsistent with their hypothesis. Debt covenant incentives do not appear to be associated with goodwill impairment decisions either. Stenheim and Madsen (2016) also report on corporate governance mechanisms having no apparent effect impairment decisions.

Alves (2013) examines the relationship between goodwill impairment, discretionary accruals, and earnings management in a Portuguese setting. The author presents background problem and hypothesizes, that goodwill impairment is related to earnings management. The arguments raised are similar to studies conducted both before and after. Alves (2013) uses an OLS regression model where discretionary accruals is the

dependent variable and goodwill impairment among the independent variables with additional control variables. The sample for the study is listed Portuguese companies between 2005–2010. Alves (2013) reports a positive relationship between goodwill impairments and discretionary accruals, significant at the 5 % level. The author argues that IAS 36 gives managers too much discretion when determining goodwill impairments and might result in earnings management. Alves (2013) notes that a high cash flow appears to mitigate earnings management incentives as do high political costs.

Storå (2013) examines whether management manages earnings through goodwill impairment to meet earnings targets. The author explains that the earnings target will presumably create strong incentives, that dictates management behavior. The research is built on three hypotheses for three types of earnings management behavior. Storå (2013) anticipates, that companies who barely reach an earnings target are incentivized to manage earnings upward. According to Storå (2013), companies want to beat targets with a clear but not excessive margin. The author anticipates, that when earnings either significantly exceed or fall short of earnings targets, management might instead be incentivized to manage earnings downwards. Earnings targets, that are used in the study, are zero earnings and earnings from the previous year. The sample consists of companies who report in IFRS from multiple countries. These are divided into a treatment group and control group. For upwards earnings management, Storå (2013) employs a distributional approach with the goal to capture two different forms of behavior. These are defined as avoiding goodwill impairments and staying in the same interval, where the company will remain in the same earnings interval despite taking a goodwill impairment charge. For the downwards earnings management, Storå (2013) employs a logit regression, to examine possible differences between the treatment group and control group. The author reports, that the study offers evidence that supports all three hypotheses.

3.2 SFAS research on goodwill earnings management

Beatty and Weber (2006) examine the adoption of SFAS 142 and the accounting decisions it affected. The authors focus on impairment decisions taken by management

and how much is impaired. Beatty and Weber (2006) argue that impairment decisions are a trade-off situation for managers. The authors expect that debt contracts, market valuations and management compensation will influence management incentives and behavior. The first hypothesis expects that a net worth covenant that considers accounting changes will lead to smaller goodwill impairments when adopting SFAS 142. The second hypothesis expects that companies that run a high risk of big impairment later, will take a larger impairment charge when adopting SFAS 142. The third hypothesis expects that companies with earnings-based compensation will decrease the likelihood and amount of impairment, when adopting SFAS 142. The fourth hypothesis expects that short CEO tenure will increase the likelihood and amount of goodwill impairment when adopting SFAS 142. The fifth hypothesis expects that an exchange with financial-based listing requirements will decrease the likelihood and amount of impairment. The research uses listed companies from the year 2001 as their sample. Beatty and Weber (2006) report that they found evidence of market considerations, debt contracts, management bonuses, turnover and delisting incentives, affecting management preferences and their choices to accelerate or delay expense recognition.

Hayn and Hughes (2006) aim to study whether investors and auditors manage to assess the value of goodwill and predict impairments, with the amount of information available. The research studies two time periods, the first period is before the introduction of SFAS 142 and the second is after. The authors report that the introduction of corrective standard SFAS 142 was needed, since they found that accurate goodwill assessment and predicting an impairment was only possible in approximately 50% of the cases studied. Hayn and Hughes (2006) note, that even with the introduction of SFAS 142, more disclosure is needed to make better predictions of goodwill impairments. According to the authors, predicting an impairment of goodwill is similar in nature to predicting bankruptcy. Initial findings show, that write downs occur more frequently among companies where the overpayment was relatively high, in comparison to companies where impairments did not occur. The authors report that, the predictive ability of investors and auditors has not improved much after SFAS 142, which the authors find troubling, since it was the intent of SFAS 142. Hayn and Hughes (2006) also report that a lag between the reported impairment and the

impairment occurring appears to persist and managers are still exercising excessive discretion which hinders the fair assessment of goodwill.

Jordan and Clark (2011) examine whether companies engaged in big bath accounting, during the years after the introduction of SFAS 142. The authors divide their sample into two groups, one with companies that did record goodwill impairment during 2001–2002 and the second group with companies that did not. The estimate is based on the big bath theory: companies are more likely to take a goodwill impairment charge when earnings are lower than expected. Jordan and Clark (2011) use Fortune 100 companies as their sample for the research and omit companies that had no goodwill or missing data. The authors report that they find evidence of possible big bath accounting, as companies that recorded goodwill impairment, reported significantly lower earnings, than companies not recording goodwill impairments.

Li and Sloan (2017) examine the impact of SFAS 142 on the accounting and valuation of goodwill. The authors criticize SFAS 142 and argue, that it may have had the opposite effect. Li and Sloan (2017) argue that impairment-only goodwill accounting will result in aggressive accounting practice and will reduce timeliness. The study examines the timeliness of goodwill impairments and whether investors are aware of inflated goodwill balances. The research hypothesis is, that goodwill impairments were timelier before the introduction of SFAS 142 and that stock prices do not fully anticipate the untimely nature of goodwill impairments after SFAS 142. The sample consists of listed companies from 1996–2000 and 2004-2011. The authors report, that goodwill balances appear to be inflated in the period following SFAS 142. Additionally, impairments are less timely, and investors appear oblivious to this. Li and Sloan (2017) conclude that their criticism is supported by their findings and, that SFAS 142 has not had the desired effect on goodwill accounting.

Ramanna and Watts (2012) test whether agency theory holds for goodwill non-impairments under SFAS 142. The research uses a few agency motives, that might lead to earnings management as variables. These are represented by proxies. The sample for the study is listed United States companies between 2003 and 2006. The researchers use a multivariate regression, to estimate the effects assumed motives for non-impairments. Ramanna and Watts (2012) report, that they find some evidence on

non-impairments and CEO compensation proxy, CEO reputation proxy and covenant violation proxies. This suggests that managers are to some extent avoiding impairments charges in a timely manner and try to delay the charges (Ramanna and Watts 2012). The study concludes, that based on the sample in the study, no apparent beneficial effects of SFAS 142 can be observed.

3.3 Summarizing previous findings and development of expectations

Previous research has revealed some evidence to suggest, that companies may have engaged in earnings management behavior following the introduction of IFRS 3 and SFAS 142, respectively. The evidence was in general reported as weak or limited.

It appears, that the financial market (Saastamoinen and Pajunen 2016) and high political costs (Alves 2013) can in some way mitigate the risk of earnings management. Country specific traits also influence the outcome of the research. The results of Giner and Pardo 2014) differs slightly from Lemans (2010), Saastamoinen and Pajunen (2016) and Stenheim and Madsen (2016). Hassine and Jillani (2017), Sapkauskiene et al (2016) and Saastamoinen and Pajunen (2016) find a relationship between CEO change and goodwill impairment decision, while Lemans (2010) finds no such relationship. All of them report on signs of earnings management but disagree on the driving factor.

The sign of CEO change having an impact on impairment decisions, is consistent with the hypothesis that new management has the incentive to set initial expectations low and thus make them easier to reach. The finding of goodwill impairment increasing with negative pre-impairment earnings, could be a sign of big bath. These could, however, also be logical. The new CEO may have a different view on the future cash flow, that is associated with goodwill. If earnings are negative and management does not see an improvement in the immediate future, it would also be logical for them to impair goodwill. What is important, is that the negative earnings are linked to the CGU carrying goodwill.

Sapkauskiene et al (2016), Jordan and Clark (2011) and Giner and Pard (2015) find some evidence of goodwill impairments occurring, when earnings are below expectation and the impairments appear larger. According to the authors, this may

signal possible big bath accounting, where management decides to unload excessive amounts of goodwill. The incentive is to report the lowest possible earnings and wipe the slate clean.

Ramanna and Watts (2012) find evidence of agency behavior through goodwill impairments. Goodwill impairments could have become less timely after the transition to impairment-only with SFAS 142 (Li and Sloan 2017). Both Ramanna and Watts (2012) and Li and Sloan (2017) are critical of SFAS 142 and the impairment-only approach. Both papers argue that the impairment-only method is corrupting goodwill accounting. Jordan and Clark (2011) find evidence of possible big bath accounting in the years following the introduction of SFAS 142. They speculate, that the impairment-only method may have increased the tendency to manage earnings.

When comparing United States research to European, one apparent difference is the critical tone in United States research. The United States based research also reports on stronger signs of earnings management than their European counterparts on a general level. United States research also has more variance in the selected time periods. This probably stems from United States adopting the impairment-only approach first. The stronger signs of earnings management may stem from there actually being more earnings management occurring in the United States. Another reason may be the difference in research methodology. The regressions used by the different research use different variables and different thresholds that may signal earnings management.

Based on the findings of previous research the expectation is to still find some signs of downwards earnings management. What needs to be kept in mind is that no previous research has been able to prove that earnings management has occurred. CEO changes appear to increase the likelihood and size of goodwill impairment and would be interesting examine. The interesting part would also be to examine whether the new CEO comments on the impairment in a certain way. The relationship between earnings below expectations and larger impairments may suggest at possible big bath accounting and will also be added to the expectations.

4. Research method and sample selection

4.1 Research methodology

The ideal way to conduct this research, would be to compare goodwill impairment losses, where one is the reported impairment loss, and the other is the calculated fair value impairment loss (Storå 2013). According to Storå (2013), the difference might indicate earnings management, but notes, that due to the subjective nature of goodwill, this approach is impossible. Thus, this thesis will follow the methods of previous research and adopt an indirect approach to assess possible earnings management activities.

Based on previous research, this thesis will follow a quantitative research method to answer RQ1 and RQ2. According to Bryman and Bell (2015, p.26), quantitative research is suited for a deductive approach and testing how a theory applies. More specifically, this thesis will use regression. A common approach used by previous research, is to use several regression models due to the complex nature of goodwill. Giner and Pardo (2016) use a probit regression to estimate the probability of an impairment and an OLS regression to examine the amount, that was impaired. Gros and Koch (2019) take a different approach and target observations on a company level, by using a model to predict year and company specific impairments, that should occur.

Differentiating between impairments arising from economic factors and discretionary impairments is important, since this is sometimes forgotten (Gros and Koch 2019). Beatty and Weber (2006) employ several variables, where one group functions as proxies for impairment incentives and the other group functions as a control group. In the case of Beatty and Weber (2006), they employ proxies for impairment decisions, where management will want to avoid an impairment charge. Similar proxies are also used by Storå (2013). This thesis will instead focus on opposite proxies, used by Saastamoinen and Pajunen (2016) and other research focusing on downwards earnings management (Lemans 2010; Gros and Koch 2019; Hassine and Jillani 2017).

The purpose of this methodology is to capture different situations and their relation to goodwill impairments occurring. The selected method should provide some

explanation, on what situations lead to a goodwill impairment. Some of the selected regressors are supposed to act as a proxy for logical impairments, while others point towards possible earnings management. The methodology used by Saastamoinen and Pajunen (2016) is deemed suitable for the purpose of this study. It has been applied in a similar situation before, for a similar purpose. The method selected employs a multitude of regressors, to capture both logical impairments and impairments that may signal earnings management. One important thing to note, is the simplified assumptions made to some of the regressors. The regressors that are supposed to capture earnings management, may not be actual earnings management in every case. These are only proxies for the common earnings management situations.

4.2 Regression model

This thesis will use the same logit regression model and OLS regression model used by Saastamoinen and Pajunen (2016), with a small variation. The two regressions are used, to examine how management discretion and influence from the stock market, will affect the probability of a goodwill impairment (Saastamoinen and Pajunen 2016).

The logit model used by Saastamoinen and Pajunen (2016) is given as:

$$GWI_{i,t} = \beta_0 + \beta_1 * ln(EMP_{i,t}) + \beta_2 * EQR_{i,t} + \beta 3 * ROAi_{,t} + \beta_4 ln(LN(TURN)_{i,t}) + \beta_5 CEO_{i,t} + \beta_{6*} COMP_{i,t} + \beta_{7*} FICR_{i,t} + \beta_8 GWIP_{i,t} + \beta_9 BATH_{i,t} + \beta_{10} GOVO_{i,t} + \beta_{11} CONS_{i,t} + \beta_{12} INDU_{i,t} + \beta_{13} MAT_{i,t} + \beta_{14} TECH_{i,t} + \varepsilon_{i.t}$$

The explanation of the variables will be given in the next section.

DeMaris (1992, p.2) explains, that a logit regression model is used in a scenario, where only two outcomes are possible for a variable, controlling for the other variables in the model. According to DeMaris (1992, p2), a person using a logit regression, is interested in the conditional odds of an outcome, given the characteristics, that are controlled for. In this scenario, management can only choose, between impairing goodwill and not impairing. In this case, the variables are supposed to give a prediction of goodwill impairment occurring. A result given by the model, may signal earnings management, when certain variables show strong predictive power.

Saastamoinen and Pajunen (2016) explain that the model is estimated with random effects. Saastamoinen and Pajunen (2016) also tested a fixed effects model but discovered that it was less appropriate for the purpose. The key difference between fixed and random effects, is that a fixed effects model assumes that the variables are fixed, either to a specific entity or over a period (Stock and Watson 2015, pp.407).

The OLS model used by Saastamoinen and Pajunen (2016) is given as:

$$GWIS_{i,t} = \beta_0 + \beta_1 \ln(EMP_{i,t}) + \beta_2 EQR_{i,t} + \beta_3 ROA_{i,t} + \beta_4 \ln(LN(TURN)_{i,t}) + \beta_5 CEO_{i,t} + \beta_6 COMP_{i,t} + \beta_7 FICR_{i,t} + \beta_8 GWIP_{i,t} + \beta_9 BATH_{i,t} + \varepsilon_{i,t}$$

The explanation of the variables will be given in the next section.

Saastamoinen and Pajunen (2016) explain that the OLS model is estimated with fixed effects. The OLS model is used to examine the relations between the selected variables and the size of the goodwill impairment. Both models are modified by omitting the variable *FICR,* which Saastamoinen and Pajunen (2016) used as a dummy variable to control for the financial crisis in 2008-2009. Instead, this thesis will introduce another variable: *SHACQ,* for companies acquiring their own shares. This variable is added to examine, whether a possible relationship between goodwill impairment and acquisitions of shares occurring afterwards exists. The final regression for the logit regression (model 1) will thus be the following:

$$GWI_{i,t} = \beta_0 + \beta_1 * \ln(EMP_{i,t}) + \beta_2 * EQR_{i,t} + \beta 3 * ROAi_{,t} + \beta_4 \ln(LN(TURN)_{i,t}) + \beta_5 CEO_{i,t} + \beta_{6*} COMP_{i,t} + \beta_{7*} SHACQ_{i,t} + \beta_8 GWIP_{i,t} + \beta_9 BATH_{i,t} + \beta_{10} GOVO_{i,t} + \beta_{11} CONS_{i,t} + \beta_{12} INDU_{i,t} + \beta_{13} MAT_{i,t} + \beta_{14} TECH_{i,t} + \varepsilon_{i.t}$$

And the OLS regression (model 2) will be given as:

$$GWIS_{i,t} = \beta_0 + \beta_1 \ln(EMP_{i,t}) + \beta_2 EQR_{i,t} + \beta_3 ROA_{i,t} + \beta_4 \ln(LN(TURN)_{i,t}) + \beta_5 CEO_{i,t} + \beta_6 COMP_{i,t} + \beta_7 SHACQ_{i,t} + \beta_8 GWIP_{i,t} + \beta_9 BATH_{i,t} + \varepsilon_{i,t}$$

4.2.1 Regression variables.

The study uses the same models used by Saastamoinen and Pajunen (2016) and thus the same variables.

The dependent variables are: *GWI,* stands for goodwill impairment and *GWIS,* stands for goodwill size as the percentage of total assets. The designation for the variable will be changed to *Gwd Impairment*.

The independent variables used by Saastamoinen and Pajunen (2016) are as follows:

CEO: stands for CEO change and is the variable used to control for a change in chief executive officer during a year. The variable is a dummy variable that has the value 1 when a change in CEO occurred during the fiscal year.

COMP: stands for management compensation and is the variable to control for the management compensation plan. The variable has the value of 1 when the management compensation plan is tied to stock performance.

BATH: stands for earnings bath and is the variable, that controls for potential earnings bath behavior occurring. Saastamoinen and Pajunen (2013) explain that this variable assumes that a bath occurs if the earnings are negative despite the goodwill charge.

LN(TURN): is a variable, that acts as a proxy for the liquidity of the stock. Saastamoinen and Pajunen (2016) define stock liquidity as the ratio of the average monthly trading volume of the stock to its outstanding shares. According to Saastamoinen and Pajunen (2016), a stock that is traded frequently is subjected to tighter monitoring by investors and officials.

GWIP: stands for goodwill impairment propensity. This variable controls for companies, that are more likely to impair goodwill. Companies, that are more likely to recognize goodwill impairment, are companies where the difference between market value and book value of equity is less than recorded goodwill.

EQR: stands for the company's equity ratio. Equity ratio can be used as a criteria, that triggers debt covenants. A company with a low equity ratio might be viewed as either being in financial distress or, that it has promise of high future cash flow.

ln (EMP): controls for the size of the company with the natural logarithm of the number of employees. This variable is motivated by previous research finding, that large companies have higher quality financial reporting and higher compliance. Firm size also reflects the resources, that a company can utilize for impairment testing. Large companies are also monitored more closely.

ROA: stands for return on assets. Return on assets can be used as a benchmark for company performance. Poor performance may affect market value or management compensation and could create incentives for earnings management.
GOVO: stands for government ownership and controls for the shares that the government owns in a company. Companies with government ownership may be more risk averse, due to scrutiny from politicians. Political connections may lead to lower quality reporting, as companies become less sensitive to market pressure.

Furthermore, Saastamoinen and Pajunen (2016) use sector controls for the regression, to control for the different natures of certain industries that are present on the Helsinki Stock exchange. These being: *CONS* = consumer goods, *INDU* = Industrial goods and services, *MAT* = Materials, *TECH* = Technology. Saastamoinen and Pajunen (2016) note that these industries are more exposed to cyclical changes, which makes it difficult to forecast cash flow rates and are thus used.

The newly added variable *SHACQ,* is as dummy variable and will assume the value of 1, when a buyback of shares occurs the following period.

4.2.2 Implementing confusion matrix for regression model 1.

In contrast to Saastamoinen and Pajunen (2016), this thesis will also implement a confusion matrix for model 1. The confusion matrix tests the overall prediction power of the model. According to Ohsaki e.t al (2017), a confusion matrix is used to classify imbalanced data, by certain characteristics and a given threshold. Imbalanced data is defined by Ohsaki e.t al (2017), as a data set which is divided into two classes and the number of observations between the two classes differs significantly. Saastamoinen and Pajunen (2016) report on 86 impairments occurring from 427 total observations. The assumption in this thesis is, that the ratio will remain similar and would thus motivate the use of a confusion matrix.

The confusion matrix in this thesis will classify each observation into either an impairment or non-impairment. The classification is made with the different variables. This will be accomplished by calculating the probability of goodwill impairment

occurring, for each observation given the variables. The first step is to calculate the logit and elogit for all observations.

The logit is the $\log(\text{odds}) = \beta 0 + \beta 1 + \beta 2 + \beta 3 + \beta 4 + \beta 5 + \beta 6 + \beta 7 + \beta 8 + \beta 9 + \beta 10 + \beta 11 + \beta 12 + \beta 13 + \beta 14_{13} + \beta_{14}$

The elogit is the Euler's number, raised to the power of the logit. With the elogit, the probability of goodwill impairment can then be calculated. Simultaneously, this allows for calculating the probability of a correct match. The log likelihood is then calculated from the probability of correct match. The initial calculations are made with the variables set at 0. They are then optimised, by maximising the sum of the log likelihood of all observations.

By maximising the sum of log likelihood, the optimal probability is obtained and is used to categorize the observations into the two groups: predicted impairment and predicted non-impairment. These will then be organised into the confusion matrix, to assess how the model performed. Three benchmarks are selected, to evaluate the classification performance. Ohisaki et al (2017) presents accuracy, precision/positive predictive value, and recall/true positive ratio, as common benchmarks to use. Accuracy refers to how many predictions were correct overall. Precision/positive predictive value, as the name implies, refers to how many of the predictions turned out to be true. Finally, true positive/recall, refers to how many true outcomes were correctly identified. In this thesis, the three benchmarks will be referred as: accuracy, precision and recall ratio.

4.3 Validity

The simplest definition of validity refers to the problem of whether a measurement really measures its intended objective. According to Bryman and Bell (2015, p.159-160), different forms of validity have been presented: face validity, concurrent validity, predictive validity, and convergent validity. The most important form of validity, according to Bryman and Bell (2015, p160), is face validity. Face validity refers to the measurements measuring their intended objective. Concurrent validity refers to a relevant criterion for cases where differing situations are known. Predictive validity refers to using a future criterion measure. Construct validity refers to deducing a

hypothesis from a theory. Convergent validity refers to comparing a measurement, to other measurements that have been applied to a similar concept (Bryman and Bell 2016, p.159-160).

Another way of assessing validity, is the divide between internal and external validity. Internal and external validity distinguish between the population and setting studied. They also distinguish between the population and setting on which results are generalized (Stock and Watson 2015, p361-362). Internal validity refers to statistical inferences about casual effects being valid for the studied population. External validity on the other hand, refers to the results derived from the studied setting and population, being generalized on other populations and settings (Stock and Watson 2015, p361-362).

4.3.1 Threats to validity.

The purpose of the study is, to examine signs of possible earnings management and in what situations these might occur. The important objective for the model, is to capture situations where earnings management may have occurred. A few threats to validity need to be addressed. First are the threats to external validity.

One external threat is the difference in population, where results are not comparable (Stock and Watson 2015, p363). The main problem is that the causal effects in two different populations might be completely different. Another threat is, the difference in settings, compromising comparability (Stock and Watson 2015, p 363). These might stem from difference in institutional, legislative, or physical environment. The primary external threat to this study is the difference in population. This thesis is based on Finnish companies. Thus, one cannot assume complete comparability with studies conducted in other countries. The primary comparison will thus be made to Saastamoinen and Pajunen (2016), who also studied Finnish companies. The different time-period would normally also create some threats to external validity. The different time-period is, however, selected to examine and evaluate possible changes.

Threats to internal validity is also to be addressed. Stock and Watson (2015, p365) list the omitted variable bias as a primary threat to internal validity. The omitted variable

bias occurs, when a variable both determines a dependent variable and is correlated with one or more of the included regressors. The challenge is to identify the possible omitted variables, that could cause this and include them in the regression. The current regression used in this thesis has been used before by Saastamoinen and Pajunen (2016). In their study, the model does not appear to suffer from an apparent omitted variable bias. This does, however, not mean that this threat can be ignored. This thesis will assess possible bias in the empirical chapter with data.

The possibility of missing data will also pose a threat to the validity of this thesis. Stock and Watson (2015, p371) outline three scenarios to consider. The first scenario is data missing at random. The second scenario is when data is missing depending on the selected regressor. The third scenario is data missing because of the dependent variable. The reason for the data missing could signal threats towards internal validity. The data missing at random is fixed by reducing the sample size without bias (Stock and Watson 2015, p371). If the data missing is related to the value of certain regressors, the problem can be somewhat alleviated by reducing the sample size. If data missing is related to the dependent variable, this could signal possible selection bias on the sample.

The method selected is not expected to run into these problems. Saastamoinen and Pajunen (2016) do not report on their method running into trouble. The sample selection will be made on a few simple criteria. The criteria selected, are made on the premise of having a complete sample and having companies that follow the same legislation.

4.4 Reliability.

Reliability in quantitative research, is defined as the consistency of a given measure (Bryman and Bell 2016, pp 157-158). Three components make up reliability: stability, internal reliability, and inter-observer consistency. Stability entails that the measure itself should be stable over time, so that the observer can be confident it can be used in later research as well (Bryman and Bell 2016, pp 157-158). The stability can be verified by redoing a test at two separate time intervals for example. Internal reliability

refers a situation where multiple indicators are used and the indicators that make up a measure, for example a scale or index are consistent. For a measure to have internal reliability, all the indicators need to relate to the same measure. Inter-observer consistency refers to possible subjective judgement in the activity of recording or translation of data (Bryman and Bell 2016, pp 157-158).

By having reliability, the method used in this thesis can be reused at a later stage and be confident that the results will be isolated to the desired effects. The method could, also be used with data from a different country and reach comparable results.

4.4.1 Threats to reliability.

One problem that could occur, is the possibility of the first test influencing the second test (Bryman and Bell 2016, pp 157-158). When one or more indicators are unrelated, it would compromise the internal reliability. If multiple observers are included in the process, a possible outcome is, the observers not reaching the same conclusion. This may compromise the consistency of the final data that will be used (Bryman and Bell 2016, pp 157-158).

This thesis has selected measures where there should be little to no threats towards reliability. The selected measures are relatively simple in nature and what they measure is based on data that can be extracted from publicly available sources. They should thus provide good stability to the regression. The threat to internal reliability should also be addressed by the regressors, that are all supposed to measure the relationship between certain factors and the goodwill impairment decision and amount.

4.5 Sample selection.

The thesis will use longitudinal data similarly to Saastamoinen and Pajunen (2016), to track observations over time. Stock and Watson (2015, s.57–58) define longitudinal data as data where an entity is observed at two or more time periods. The panel data in this thesis will use listed companies from the Helsinki stock exchange from 2015 to 2019. The period is selected, as it adds previous research by examining a different period and revealing possible changes. 2005-2009 were in the early stages of IFRS 3

and could be viewed as a trial period. During this period, companies were searching for methods to implement it. By selecting 2015-2019 as the period, companies should have had ample time to adjust to IFRS 3. The world has also recovered from the financial crisis of 2008-2009 at this point and it should not influence the results.

A few criteria are introduced for the sample selection. 1) The company must have goodwill recognized on their balance sheet at some point during the period. 2) If the financial data in the database is incomplete these will be excluded from the sample. 3) Since the list of companies from the stock exchange will be downloaded after 2019, all companies that have been listed post 2019 will be excluded. This thesis will also exclude all companies that are banks or insurance companies, due to the difference in legislation.

The selection started out with 134 companies, that were on the Helsinki stock exchange at the time of extracting the list. 14 companies are listed as banks or insurance companies and are excluded from the list. 3 companies on the list were listed after 2019 and where thus also excluded. 15 companies had no goodwill recognised on their balance sheet during the period and where also excluded. 15 companies had incomplete information in the database, or the information was inconsistent and where thus excluded. Left was a total of 87 companies which gave a total of 435 observations over the period, resulting in a comparable number of observations to Saastamoinen and Pajunen (2016).

4.6 Heteroskedasticity and homoscedasticity.

The first assumption in a least square's model is that the distribution of the standard error conditional to on the independent variable X has a mean of 0. Furthermore, the variance of this distribution, does not depend on the independent variable X. If these hold true the standard errors are said to be homoscedastic (Stock and Watson 2015, p. 203). This implies, that the conditional distribution will remain constant when X changes.

If these assumptions don't hold, the errors are heteroskedastic. This implies, that the distribution changes, depending on X. This may lead to statistical interferences, if the model used, is suitable for homoscedastic data. (Stock and Watson 2015, p.207).

Whether homoskedasticity or heteroskedasticity occurs in the data is dependent on the nature of data and the application it is used for. Certain data is more prone to showcase heteroskedasticity (Stock and Watson 2015, p. 209). When in doubt Stock and Watson 2015, p. 209) advise to use models that allow heteroskedasticity, which this thesis will do.

5. Empirical results

5.1 Descriptive statistics.

A total of 27 goodwill impairments were recognised during the period, which is far less, than the 86 impairments reported by Saastamoinen and Pajunen (2016). The goodwill impairments are presented in table 1.

Table 1

	2015	2016	2017	2018	2019	Average
Count	5	3	7	6	6	5
%	0.06	0.03	0.08	0.07	0.07	0.06

The reasons behind a lower count of goodwill impairments can have many explanations. One explanation could be better valuation techniques at the acquisition stage have been adopted. Alternatively, goodwill recognition is more conservative and thus, decreases the pressure for goodwill impairments. Another possible explanation is the financial crisis. Saastamoinen and Pajunen (2016) comment on a noticeable increase in impairments for 2008 and 2009. No such crisis occurred during the period of 2015-2019. This could also explain the lower count of impairments, as the outlook on future cash flows is more positive and appear stable, combined with more conservative goodwill recognitions.

Descriptive statistics for model 1 are shown in table 2. The mean for goodwill impairment measured against total assets is approximately 7%. Saastamoinen and

Pajunen (2016) reported a goodwill impairment of approximately 1,6% of total assets. The average size of goodwill impairments in relation to total assets have thus, increased, even though the frequency has dropped.

Table 2

	Gwd Impairment (size)	Gwd Impairment (occ)	EQR	ROA	SIZE	CEO	COMP	BATH	TURN	GWIP	CONS	INDU	MAT	TECH	GOVO	SHAQ
Mean	0,0694	0,0621	0,4093	0,0428	7,3204	0,1218	0,9770	0,0230	0,5470	0,2966	0,1954	0,3563	0,1034	0,2069	0,1264	0,1839
Standard Error	0,0241	0,0116	0,0126	0,0126	0,0876	0,0157	0,0072	0,0072	0,0714	0,0219	0,0190	0,0230	0,0146	0,0194	0,0160	0,0186
Median	0,0137	0	0,420	0,039	7,282	0	1	0	0,259	0	0	0	0	0	0	0
Mode	N/A	0	N/A	N/A	5,961	0	1	0	0	0	0	0	0	0	0	0
Standard Deviation	0,1250	0,242	0,263	0,263	1,828	0,327	0,150	0,150	1,490	0,457	0,397	0,479	0,305	0,406	0,333	0,388
Sample Variance	0,0156	0,058	0,069	0,069	3,340	0,107	0,023	0,023	2,220	0,209	0,158	0,230	0,093	0,164	0,111	0,150
Kurtosis	6,6203	11,321	37,097	92,630	-0,073	3,399	38,984	38,984	90,848	-1,206	0,379	-1,645	4,851	0,109	3,103	0,684
Skewness	2,5464	3,643	-4,344	4,313	-0,217	2,320	-6,388	6,388	8,802	0,894	1,542	0,602	2,613	1,452	2,256	1,637
Range	0,5239	1	3,301	5,848	10,984	1	1	1	20	1	1	1	1	1	1	1
Minimum	0,0000	0	-2,356	-2,451	0,560	0	0	0	0	0	0	0	0	0	0	0
Maximum	0,5239	1	0,945	3,396	11,543	1	1	1	20	1	1	1	1	1	1	1
Sum	1,8726	27	178,028	18,640	3184,382	53	425	10	237,955	129	85	155	45	90	55	80
Count	27	435	435	435	435	435	435	435	435	435	435	435	435	435	435	435

This could possibly signal, that managers are unwilling to make smaller impairments and prefer to make impairments, when the difference between carrying amount and fair value become significant. The largest goodwill recorded in the population was 52% of total assets.

The mean for *EQR* is at 41% and *ROA* is at 4,3%. Saastamoinen and Pajunen (2016) report on an *EQR* of 46,6% and *ROA* at 4%, indicating that companies are more in debt, but slightly more profitable.

5.2 Test for correlation.

The spearman correlations for model 1 is shown in tables 3 and 4. A correlation exists between *Gwd Impairment* and *ROA*, *BATH* and *LN(TURN),* that is significant on the 5% level. Most variables do, however, not have a significant correlation with *Gwd Impairment*. The results differ somewhat, the correlations being with *EQR, ROA*, *CEO*, *BATH*, *LN(TURN)* and *GWIP* reported by Saastamoinen and Pajunen (2016). *CEO* and *GWIP* appear to have no significant correlation on the either the 1% or even the 5% level with *Gwd Impairment,* in the data used by this thesis.

A positive relationship between *TECH* and *Gwd Impairment* can be observed, indicating that the industry has some correlation, with both the occurrence and size of goodwill. Saastamoinen and Pajunen (2016) also report on this relationship, but a negative one. Saastamoinen and Pajunen (2016) also report on a relationship between *Gwd Impairment* and *MAT,* which is not found. Saastamoinen and Pajunen (2016) note, that the materials sector is sensitive to business cycles, due to the nature of their cash flow.

Table 4: correlation matrix(model 2)

	Gwd Impairment (size)	EQR	ROA	SIZE	CEO	COMP	BATH	TURN	GWIP	CONS	INDU	MAT	TECH	GOVO	SHAQ
Gwd Impairment (Size)															
EQR	-0.0477														
ROA	-0.1510	0.4532													
SIZE	0.0351	0.0379	0.1561												
CEO	0.0776	-0.038	-0.097	-0.038											
COMP	0.0394	0.1191	-0.041	0.0402	0.0571										
BATH	0.5912	-0.159	-0.229	-0.076	0.0835	0.0235									
TURN	-0.0970	0.0381	0.0657	0.3826	-0.033	0.259	-0.086								
GWIP	-0.0436	-0.091	-0.328	-0.136	0.0505	-0.169	0.1019	-0.238							
CONS	-0.0518	0.237	0.0278	0.1386	0.0646	-0.234	0.0018	-0.024	0.1624						
INDU	-0.0570	-0.078	0.0917	0.2063	-0.072	0.1141	-0.082	0.2266	-0.21	-0.367					
MAT	0.0374	-0.157	-0.102	-0.17	-0.034	0.0521	0.099	-0.013	-0.022	-0.167	-0.253				
TECH	0.0849	-0.013	-0.023	-0.114	0.0006	0.0783	-0.003	-0.054	-0.083	-0.252	-0.38	-0.173			
GOVO	-0.0680	0.0185	0.1077	0.3532	-0.057	-0.172	-0.058	0.3299	-0.096	0.0742	0.1502	-0.129	-0.024		
SHAQ	0.0006	0.1417	0.068	0.1144	-0.014	0.0332	-0.073	-0.098	0.0556	0.0354	0.0309	-0.083	-0.008	-0.056	

= p-value<0,05 =p-value<0,1 =p-value>0,1

Table 3: correlation matrix(model 1)

	Gwd Impairment	EQR	ROA	SIZE	CEO	COMP	BATH	TURN	GWIP	CONS	INDU	MAT	TECH	GOVO	SHAQ
Gwd Impairment															
EQR	-0.0493														
ROA	-0.1504	0.4532													
SIZE	0.0300	0.0379	0.1561												
CEO	0.0789	-0.0383	-0.0971	-0.0384											
COMP	0.0395	0.1191	-0.0414	0.0402	0.0571										
BATH	0.5963	-0.1586	-0.2286	-0.0759	0.0835	0.0235									
TURN	-0.0983	0.0381	0.0657	0.3826	-0.0325	0.259	-0.0857								
GWIP	-0.0419	-0.0906	-0.3278	-0.1363	0.0505	-0.1691	0.1019	-0.2382							
CONS	-0.0547	0.237	0.0278	0.1386	0.0646	-0.2339	0.0018	-0.0244	0.1624						
INDU	-0.0521	-0.0782	0.0917	0.2063	-0.0717	0.1141	-0.0821	0.2266	-0.2098	-0.3667					
MAT	0.0378	-0.1573	-0.1018	-0.1704	-0.0342	0.0521	0.099	-0.0125	-0.0222	-0.1674	-0.2527				
TECH	0.0803	-0.0131	-0.0232	-0.1136	0.0006	0.0783	-0.0026	-0.0538	-0.0831	-0.2517	-0.38	-0.1735			
GOVO	-0.0692	0.0185	0.1077	0.3532	-0.0571	-0.1724	-0.0584	0.3299	-0.0956	0.0742	0.1502	-0.1292	-0.0236		
SHAQ	0.0008	0.1417	0.068	0.1144	-0.0136	0.0332	-0.0728	-0.0985	0.0556	0.0354	0.0309	-0.0833	-0.0081	-0.0556	

= p-value<0,05 =p-value<0,1 =p-value>0,1

5.3 Confusion matrix for model 1

With the data, model 1 is used to predict goodwill impairments occurring or not occurring. This is accomplished by maximising the sum of log likelihoods for all observations and using a determined cut-off point to make predictions for goodwill occurrence. The cut-off point is the threshold for classifying predictions. With the cut-off point set at 0,5, all predictions above 50% certainty, are assigned the predicted value of one. The value one, indicates, that a goodwill impairment is predicted to occur. The predictions are then compared to the actual outcome and summarized in a confusion matrix, displayed in table 5. The zero and one in the matrix represent non impairment (zero) and impairment (one).

The confusion matrix for model 1, in table 5, displays how many falsely and correctly goodwill impairments were predicted. The matrix in table 5, was initially computed with a cut off value of 0,5. With the initial cut off value, model 1 was able to predict the no goodwill occurring accurately as displayed by table 5. The ability to correctly predict goodwill impairment occurring is, however, weaker with a cut-off of 0,5. The recall rate for model 1 is approximately 40% which is displayed in table 6 and can also be viewed in table 5 (11/27). The false positive ratio for the model is 0,245% indicating that 1 in 408 cases the model will falsely predict goodwill impairment occurring. The model did incorrectly predict non-impairment for 16 instances that turned out to be impairments.

Table 5 Confusion matrix for model 1

	Gwd Impairment	predicted 0	predicted 1	Total
actual	0	407	1	408
actual	1	16	11	27
Total		423	12	435

Displayed in table 6 is the accuracy, precision, and recall rate for the model at different cut off points. The accuracy in the table displays the model's ability to correctly predict both goodwill impairment occurring and not occurring ((407+ 11)/435). Precision measures the amount of predicted goodwill impairments that were correct (11/12). Finally, the recall ratio measures, how many goodwill impairments were correctly identified from the total amount of goodwill impairments (11/27).

Table 6 Summary of accuracy, precision and recall ratio att different cut off points

Cut off	Accuracy	Precicsion	Recall
0	0.073563	0.062791	1
0.1	0.901149	0.333333	0.592593
0.2	0.96092	0.777778	0.518519
0.3	0.963218	0.866667	0.481481
0.4	0.965517	0.928571	0.481481
0.5	0.96092	0.916667	0.407407
0.6	0.96092	0.916667	0.407407
0.7	0.963218	1	0.407407
0.8	0.96092	1	0.37037
0.9	0.96092	1	0.37037
1	0.937931	#DIV/0!	0

By changing the cut off rate the ratios change. This change occurs, because the classifications made by the model change. A lower cut off results in more predictions classified as impairments. This increases the recall ratio but decreases the accuracy and precision. From table 6 shows, that the optimal cut off ratio for all three combined appears to be 0,4. At this cut off point all three ratios are at their highest with respect to each other.

Table 7 Regression results for model 1 and 2

	Dependent variable: Gwd Impairment	
	Model 1: Occurrence	Model 2: Size
EQR	0.067	-0.008
	(0.042)	(0.007)
ROA	-0.053	-0.015**
	(0.040)	(0.007)
LN(SIZE)	0.013**	0.001
	(0.006)	(0.001)
CEO	0.032	0.005
	(0.029)	(0.005)

COMP	-0.049	-0.004
	(0.066)	(0.012)
BATH	0.983***	0.054***
	(0.063)	(0.011)
LN(TURN)	-0.001	0.001
	(0.006)	(0.001)
GWIP	-0.052**	-0.007*
	(0.022)	(0.004)
CONS	-0.044	-0.0005
	(0.034)	(0.006)
INDU	-0.016	-0.004
	(0.032)	(0.006)
MAT	-0.015	-0.002
	(0.039)	(0.007)
TECH	0.030	0.010*
	(0.033)	(0.006)
GOVO	-0.049	-0.005
	(0.030)	(0.005)
SHAQ	0.019	-0.002
	(0.024)	(0.004)
Constant	-0.008	0.005
	(0.077)	(0.013)
Observations	435	435
R^2	0.391	0.116
Adjusted R^2	0.370	0.087
Residual Std. Error (df = 420)	0.192	0.033
F Statistic (df = 14; 420)	19.236***	3.955***
Significance levels:	*p<0,1**p<0,05***p<0.01	

5.4 Regression model 1 results

The regression results of model 1, is displayed in table 7. R^2 for the regression is 0.391, giving a 39% explanation rate comparable to the true positive rate of the confusion matrix.

What can be observed, is that most of the variables in the model, have no apparent statistically significant relationship with *Gwd Impairment.* The size of the company (*LN(SIZE)*) has a positive and goodwill impairment propensity (*GWIP*) has a negative relationship with goodwill impairment occurring on the 1% and 5% significance level respectively. *BATH* has a positive relationship with *Gwd Impairment* statistically significant at the 1% level. Saastamoinen and Pajunen (2016) report on *LN(SIZE),* having a statistically significant relationship at the 5% level. Saastamoinen and Pajunen (2016) report on *GWIP* having a positive relationship on the 10% level, but *BATH* not having a statistically significant relationship with the occurrence of goodwill impairment. In contrast, Saastamoinen and Pajunen (2016) report on *ROA* and *CEO* having a statistically significant relationship at the 1% level. Consistent with Saastamoinen and Pajunen (2016) this thesis found that *LN(TURN)* and *COMP* have no statistically significant relationship with *Gwd Impairment.* Neither did the new variable for this thesis: *SHAQ.*

None of the industry sector dummy variables have a statistically significant relationship with *Gwd Impairment.* The dummy variable *GOVO* does not have a statistically significant relationship with *Gwd Impairment* either. Both findings are consistent with Saastamoinen and Pajunen (2016).

5.5 Regression model 2 results

The regression results for model 2 is shown in table 7. A negative and statistically significant relationship between the *ROA* of the company and the size of goodwill impaired can be observed. Saastamoinen and Pajunen (2016) found no inverse relationship between *ROA* and impairment size. A positive relationship between *BATH* and impairment size can be observed. This is consistent with the findings of Saastamoinen and Pajunen (2016) who also report on *BATH* having a statistically

significant relationship with impairment size. *GWIP* has a statistically significant relationship with the impairment size inconsistent with the findings of Saastamoinen and Pajunen (2016).

No relationship between the size of the company and size of goodwill impairment. This is consistent with the findings of Saastamoinen and Pajunen (2016). No relationship between the size of goodwill impairment and *EQR*, which is inconsistent with Saastamoinen and Pajunen (2016). *TECH* also has a statistically significant relationship with the size of goodwill impairment. Saastamoinen and Pajunen (2016) found no relationship between *Gwd Impairment* and *Tech.* Consistent with Saastamoinen and Pajunen (2016) this thesis does not find a relationship with the other sector dummy variables.

The R-squred for model 2 is low at 0,116, indicating that 11,6% of changes in *Gwd Impairment* can be explained by the model.

5.6 Checking for multicollinearity.

A multiple regression assumes, that no perfect multicollinearity exists. Perfect multicollinearity occures, when one of the regressors is a perfect linear function of another regressor (Stock and Watson 2016, p.246). If perfect multicollinearity were to exist, the results of the regression would be unreliable.

To control for possible multicollinearity, the variance inflation factor (VIF) will be calculated for all regressors.

Table 8 (Model 1)

Variable	R Square	VIF
EQR	0.391	1.641
ROA	0.303	1.434
SIZE	0.242	1.319
CEO	0.208	1.263
COMP	0.041	1.043
BATH	0.144	1.169
TURN	0.053	1.056
GWIP	0.067	1.071
CONS	0.151	1.178
INDU	0.540	2.173
MAT	0.635	2.737
TECH	0.396	1.655
GOVO	0.172	1.207
SHAQ	0.061	1.065

Table 10 (Model 2)

Variable	R-square	VIF
EQR	0.116	1.132
ROA	0.303	1.434
SIZE	0.242	1.319
CEO	0.208	1.263
COMP	0.041	1.043
BATH	0.144	1.169
TURN	0.053	1.056
GWIP	0.067	1.071
CONS	0.151	1.178
INDU	0.134	1.155
MAT	0.635	2.737
TECH	0.396	1.655
GOVO	0.529	2.122
SHAQ	0.172	1.207

When calculating the VIF, it shows a value above one for all regressors. Since all values are above one, the model does have multicollinearity. However, since all values are below 10, the model does not have a critical multicollinearity. Therefore, no need to omit variables. The VIF:s for regression 1 (table 9), however, differ slightly from what Saastamoinen and Pajunen (2016) reports. The highest VIF reported by Saastamoinen and Pajunen (2016) is 1,96 while this thesis has 2.74. This was consistent for both models. Since the VIF does not exceed the critical value for any of the variables, the effects of a perfect multicollinearity can be excluded.

5.7 Discussing the findings

5.7.1 Discussing the correlation matrix

The lack of statistically significant correlation between *Gwd impairment* and *CEO* is interesting as it contradicts previous findings. The correlation has been reported by Saastamoinen and Pajunen (2016), Sapuskiene et al (2016) and Hassine and Jilani (2017). The finding is, however, consistent with Stenheim and Madsen (2016). Stenheim and Madsen (2016) report that they found no correlation between changes in senior management and impairment. This may imply, that senior management are more reluctant to impair goodwill during the year they were appointed. Another

possibility is, that the interpretation of sufficient returns to justify goodwill amounts, was more diversified during 2005-2009. A combination of more unified interpretations and changes in senior management during the 10-year gap could also provide possible explanations.

The correlation between *ROA* and *Gwd Impairment,* could also be a reverse correlation where the bad *ROA* is the result of the impairment. *ROA* could appear weaker in the year goodwill is impaired but improve the following year due to fewer assets. This is assuming, that all other factors stay the same. In such a case, the impairment might still be the result of big bath accounting. Diminishing *ROA* as such is, however, a logical trigger for impairment as it signals that expected returns might not justify the current goodwill amount. The correlation is therefore not strong evidence of earnings management occurring.

The positive correlation between *BATH* and *Gwd Impairment* is interesting and is consistent with findings by Saastamoinen and Pajunen (2016). This could imply that management still uses impairment as a tool to conduct earnings bath. This is, however, not certain as the impairment might be valid. Earnings below targets could also influence outlook which is usually a trigger for impairment. Thus, while it may appear that management is resetting their goals, it could also be their way to signal that their confidence in the future has diminished.

The negative correlation between *LN(TURN)* and *Gwd Impairment* would mean that companies whose share is traded frequently are less likely to impair goodwill. This may suggest that more frequently traded companies tend to be more economically profitable, and outlook is positive decreasing impairment pressure. It may also be due to mitigating the risk of a goodwill impairment disrupting the current trade flow.

5.7.2 Discussing the Confusion matrix.

The results from the confusion matrix in table 5, indicate that the model's ability to correctly predict goodwill impairment not occurring from the total amount of non-impairments is good at nearly 100% (out of 408 non-impairments 407 were correctly identified). What should be noted is that the model predicted that more non-impairments would occur than occurred (a total of 423 non-impairments were

predicted, 408 occurred). The predicted number of impairments was less than what occurred (12 predicted, 27 occurred). The model's ability to correctly predict goodwill impairment from the total amount of impairments, is far less, dropping to approximately 40% (out of 27 impairments, 11 were correctly identified).

As only 27 observations out of 435 were impairments, the model's prediction power is questionable. The model appears to fail at recognizing impairments but is effective at recognizing non-impairments. This could be one explanation for the near 100% prediction rate for correctly predicting goodwill impairment not occurring among total non-impairments. The original confusion matrix was calculated with the cut off-ratio of 0,5. This means, that when the calculated probability for impairment is above 50%, this will be predicted as an impairment. By changing the cut off-ratio the predictions change as shown in table 6. Thus, considering multiple cut off ratios when evaluating the prediction power is important. The three selected benchmark ratios for the model were displayed in table 6 and were: accuracy, precision, and recall.

Accuracy shows the amount of correctly predicted impairments and non-impairments from all observations. This ration remained relatively high with an average of 87% across the different cut off ratios. It would thus appear that, high reliance can be placed on the accuracy of the model. Precision shows the amount of predicted goodwill impairments that turned out to be true. This also appears to be good with an average of 78%. Finally, the recall ratio which is the amount of correctly predicted impairments from the total amount of impairments. This is noticeably lower than the accuracy and precision ratios, with an average of 45%.

This may signal a possibility of the model being biased towards classifying observations as non-impairments. As most observations in the population are non-impairments, the interest is not in the model's ability to predict impairment not occurring but on impairment occurring. Ohsaki et al (2017) note that in imbalanced data the ability to identify the anomalies becomes important. As such the recall ratio is of greater interest. As shown the model will on average give a 45% prediction rate in the population. Based on this, this thesis concludes that the model is not good at predicting goodwill impairments.

5.7.3 Discussing the regression results.

The results in regression 1 signal, that some change has occurred in the relationship between goodwill impairment and the possible signs of earnings management. The key differences between this thesis and the findings by Saastamoinen and Pajunen (2016) is that the relationship between *Gwd Impairment* and *ROA and LN(TURN)* are no longer present. The finding, that changes in the CEO have no impact on impairment decision, is also inconsistent with Sapkauskiene et al (2016) and Hassine and Jillani (2017). As said in the chapter on correlation, the lack of a relationship between *CEO* and *Gwd Impairment,* is probably due to a more united interpretation of what is an acceptable level of return or the reluctance to impair goodwill during the year of appointment.

The positive relationship between *BATH* and *Gwd Impairment,* suggests that some form of earnings management may occur through goodwill impairments. The *BATH* dummy variable assumes the value 1 when the companies' earnings would have been negative regardless. As *BATH* assumes the value 1, it increases the probability of goodwill impairment occurring. The assumption is, that managers may want to time impairments to a time when it would be just one bad news among many. By doing this, the impairment may be overlooked by stakeholders. This could also present management with the opportunity to set future targets lower. A bad year would usually, create a reasonable argument for impairing goodwill. Thus, while this may indicate a sign of earnings management it cannot be taken as an absolute fact.

The negative relationship between *GWIP* and *Gwd Impairment,* is the opposite of what Saastamoinen and Pajunen (2016) reported. *GWIP* is a dummy variable, that assumes the value of 1 when the difference between market value of the stock and book value of equity is less than recorded goodwill. The negative relationship implies, that the probability for goodwill impairment decreases when the condition for *GWIP* is met. This may be a sign of possibly overall attitude change towards larger goodwill balances. The underlying reasoning may be a generally more optimistic and less conservative view of future earnings by investors. Thus, investors may accept larger goodwill balances. Another possibility is, that management want to maintain a larger goodwill balance to signal higher expected future earnings.

The positive relationship between *LN(SIZE)* and *Gwd Impairment,* follows the same argument made by Saastamoinen and Pajunen (2016). The size of the reporting entity appears to infleunce the quality of financial reporting. It should also be noted that a larger company is more likely to have a more diverse goodwill balance were multiple reporting units have goodwill. This would naturally increase the likelihood that at least one of them is impaired. The finding is not consistent with findings by Sapkauskiene et al (2016) who reported that the size of the company did not influence impairment decision.

The results from model 1, showing most variables having no statistically significant relationship with *Gwd Impairment,* strengthens the conclusion with the confusion matrix. The model is perhaps not suited to predicting goodwill impairment in the selected setting.

The results from model 2, also suggest changes in the behavior of management. The lack of impact from *CEO* on *Gwd Impairment* in contrast to previous findings. In model 2, relationships can be observed between *Gwd Impairment* and the following variables: *ROA, BATH, GWIP* and *TECH.* Out of these variables, Saastamoinen and Pajunen (2016) only report on *BATH* having a statistically significant relationship. As in model 1 this may imply that management chooses to impair goodwill when earnings are negative and that they choose to conduct larger impairments at those moments.

The negative relationship between *ROA* and *Gwd Impairment* in model 2 and not in model 1 is interesting, as Saastamoinen and Pajunen (2016) report the negative relationship in model 1. This would imply that the inverse relationship has moved from influencing the impairment decision, to influencing the size of goodwill impaired.

The negative relationship between *GWIP* and *Gwd Impairment,* implies similar signs as discussed with the results for model 1. The relationship shows that there appears to be an inverse relationship between the size of goodwill impairment and the gap between the book value and market value of equity.

The relationship between *BATH* and *Gwd Impairment,* signals similar management tendencies as in model 1. *BATH* appears to influence the size of goodwill impairment as well. The probable reason is, management choosing to impair larger amounts when earnings are negative, as it may present management with the opportunity to lower

future targets. The occurrence of the relationship between *BATH* and *Gwd Impairment,* may signal the occurrence of agency behavior.

The relationship between *TECH* and *Gwd Impairment,* signals that companies in the tech-industry appear to record larger goodwill impairments. This is logical considering the nature of the tech-industry. The industry is usually leaning towards immaterial assets. The tech-industry is also one that is rapidly changing and may warrant goodwill impairments if the company falls behind in technical development.

6. Concluding remarks

The purpose of this thesis was, to answer the questions whether signs of earnings management through goodwill impairments exist and in what situations? This thesis also examined, the overall prediction power of the selected model. This was to examine, whether earnings management patterns have changed from earlier and whether the model used, had satisfactory prediction power. The result of this thesis shows that changes have occurred in the management behavior. The results also showed that some patterns have remained. The answer to RQ1 presented in chapter 1.3, appears to be that signs of earnings management through goodwill impairments exist. The answer to RQ2 is that earnings appear to be managed mainly when earnings are already negative. They appear as downwards earnings baths. This pattern is consistent with earlier findings. The goodwill impairments also tend to be larger in these instances. The difficulty to distinguish, whether the impairment conducted is for the benefit of management, or whether it truly reflects future outcome, remains. Assessing this, would require access to information, that is not available publicly.

Companies no longer appear to impair goodwill in situations when a new CEO has been appointed showing the shift in management behavior. The change is most likely due to a more homogenised interpretation of how goodwill impairments should be handled. It would be plausible that in 10 years' time, informal guidelines would appear. One possibility is, that impairing goodwill directly after appointment would raise the wrong form of attention and is thus put off. This may be due to earlier findings, where the change in CEO was associated with possible earnings management. This could

prompt management to change its behavior and perhaps impair goodwill a few years later. Nonetheless, the change in CEO can no longer be associated with the impairment of goodwill when these occur in the same year. The current climate also appears to tolerate lager goodwill balances.

The answer to RQ3 is, that the model is not suited for predicting goodwill impairments on an overall level. This is shown by the low recall rate. The low recall rate implies, that the model can at best only predict approximately half of goodwill impairments in the population. As the data was biased towards non-impairments, the model in this scenario should be effective at spotting the impairments. The model may perform better in another setting, but in this setting the performance is not on a desirable level.

This thesis has shown a change in management behavior in a Finnish setting. It has also shown that the model is not effective at predicting goodwill impairment occurring in the current setting. The possible changes should also be explored in other settings. The interpretation of IFRS 3 may possibly have moved in different directions following its introduction and would thus warrant examination in other settings than the Finnish setting. Another suggestion for further research would be to develop a new model for the Finnish setting. What could be explored, is whether goodwill is impaired after a few years after a new CEO is appointed. The results in this thesis have suggested towards a change in management behavior and should be examined from a different perspective.

7. Swedish summary – Svensk sammanfattning

Boksluten är viktiga verktyg för intressenter till bolag, eftersom informationen i bokslutet används som stöd för investeringsbeslut, lånebeslut m.m. Syftet med ett redovisningsregelverk är att bidra med riktlinjer om hur bokslutet bör upprättas, men inom bokslutet finns tillgångar vars värde är svåra att verifiera objektivt. Ett bra exempel är goodwill, som representerar det överpris man betalat för att anskaffa ett företag eller affärsverksamhet. Fram till början av 2000-talet var goodwill en tillgång som avskrevs under en bestämd tidsperiod. Detta ändrades då det internationella regelverket (IFRS/IAS) år 2005 introducerade IFRS 3, som ersatte den tidigare standarden IAS 22. Några år tidigare hade det amerikanska regelverket (US GAAP) introducerat den motsvarande standarden SFAS 142. Gemensamt för båda

standarderna var att man övergick från avskrivning, till nedskrivning av goodwill vid behov. Motiveringen till de nya standarderna var att detta skulle öka informationsvärdet som goodwill bidrar med då det är ytterst svårt att fastställa en ekonomisk livslängd för goodwill. De nya standarderna ledde till en debatt hos forskare ifall den nya standarden skapar utrymme för resultatmanipulering.

Forskningen har främst fokuserat på tidsperioden som direkt följde introduktionen av respektive standard. Forskare har hittat spår av eventuell resultatmanipulering och har hävdat att de nya standarderna inte haft den påverkan man hoppats på. Tidigare forskning har utforskat både tidpunkterna för goodwillnedskrivningar och storleken på nedskrivningen. Den mest undersökta tidsperioden är 2005–2009, dvs. perioden som följde introduktionen av IFRS 3. Det finns en möjlighet att resultaten delvis beror på att den nya standarden ger företagsledningen en ytterligare möjlighet för resultatmanipulering men kan också bero på obekantskap med den nya standarden. IFRS blev det obligatoriska regelverket för börslistade bolag år 2005 samtidigt som IFRS 3 introducerades. Därmed kan man se åren 2005–2009 som en prövotid för standarden. Denna avhandling använder data från åren 2015–2019 för att undersöka ifall resultaten ändrats. Perioden mellan 2005-2009 och 2015-2019 är en tillräckligt lång tid för att tillåta en mer fullständig förståelse och implementering av standarden. Avhandlingen kommer att avgränsas till finska börsbolag och kommer att följa metoden presenterad av Saastamoinen och Pajunen (2016).

En viktig del av IFRS 3 som avviker från den tidigare standarden är att den inte tillåter avskrivningar. Istället definieras goodwill nu som en tillgång med oändlig ekonomisk livslängd som endast kan nedskrivas. Företagets ledning bör enligt det nya regelverket årligen testa värderingen av goodwill för eventuella nedskrivningsbehov. IAS 36 innehåller instruktioner för hur testet bör genomföras och hur resultaten bör presenteras i bokslutet. Flera forskare menar att detta ger ledningen för mycket tolkningsutrymme. Forskare har upptäckt tecken på att goodwill hos en del bolag var övervärderade samt att nedskrivningar inte gjordes i rätt tid.

Två teorier som kan kopplas ihop med goodwill och nedskrivning av den är agentteorin och signaleringsteorin. Agent teorin utspelar sig i detta fall mellan intressenterna i

bolaget och företagsledningen som ofta har olika ambitioner. Grundproblemet i agentteorin är informationsasymmetrin till företagsledningens fördel. Antagandet är att företagsledningen har incitament för att utnyttja informationsassymentrin och maximera sin egen nytta. När det gäller goodwill tar detta oftast form av nedskrivningar som sker då det passar företagsledningen och inte då det finns skäl. Signaleringsteorin har också informationsasymmetrin som den centrala problempunkten men fokuserar mer på hur parten med fördelen väljer att kommunicera information genom signaler.

Tidigare forskning har hittat svaga tecken på resultatmanipulering genom goodwillnedskrivningar. En del forskare hittade tecken på att byte av verkställande direktör verkade öka sannolikheten för goodwillnedskrivningar. Forskare har också observerat tecken på att nedskrivningar sker om resultaten är sämre än förväntat. Dessa resultat bekräftar delvis agentteorin där företagsledningen använt informationsasymmentrin till sin fördel. Denna avhandling kommer därmed att basera förväntningarna på resultaten av dessa tidigare undersökningar.

Metoden i denna avhandling är kvantitativ till natur och den är baserad på forskningen utförd av Saastamoinen och Pajunen (2016) eftersom dessa också genomfört forskningen på den finska börsmarknaden. Metoden innehåller två olika regressioner, en logitmodell och en OLS-modell. Logitmodellen används för att utforska vilka variabler leder till en goodwillnedskrivning medan OLS-modellen mäter vilka variabler som påverkar storleken på nedskrivningen. Utöver metoden presenterad av Saastamoinen och Pajunen (2016) används också en konfusionsmatris för att mäta logitmodellens förmåga att förutspå goodwillnedskrivningar då data i samplet är obalanserade.

Samplet i avhandlingen är valt från offentligt noterade bolag på Helsingforsbörsen mellan åren 2015–2019. Samplet valdes enligt följande kriterier: 1) Bolaget bör ha goodwill i balansen vid något skede under tidsperioden. 2) Om data är inkompletta i databasen exkluderas bolaget från samplet. 3) Listan på bolag laddades ned efter 2019

och därför exkluderas alla bolag som listades på börsen efter 2019. Det slutliga samplet består av totalt 435 observationer.

Under åren 2015–2019 observerades totalt 27 nedskrivningar på goodwill. Mängden nedskrivningar var lägre än tidigare. I genomsnitt motsvarade nedskrivningen av goodwill 7 % av balansomslutningen vilket i sin tur var högre än tidigare. Logitmodellen hittade en svag korrelation mellan *Gwd Impairment, ROA*, *BATH* och *LN(TURN)*. Det finns också en relation mellan *Gwd Impairment* och *TECH.* Att *ROA* och *BATH* korrelerar med Gwd Impairment är logisk men kan handla om omvänd korrelation. Resultaten i denna avhandling avviker från de presenterade av Saastamoinen och Pajunen (2016).

Konfusionsmatrisen visade att modellen klarade av att förutspå goodwillnedskrivningar endast 11 gånger av 27. Detta innebär att modellen endast klarar av att förutspå goodwillnedskrivningar i 40% av fallen. Regressionen för logitmodellen visar att *LN(SIZE)*, *BATH* och *GWIP* har ett samband med *Gwd Impairment*. R^2 för regressionen var 0,391 vilket motsvarar resultatet i konfusionsmatrisen. Till skillnad från tidigare forskning observerades inte något samband mellan CEO och *Gwd Impairment.* OLS-modellen hittade ett negativt samband mellan ROA och Gwd Impairment samt ett positivt samband mellan *BATH, GWIP* och *Gwd Impairment.* R^2 för modell var 0,116. Förklaringsgraden för OLS-modellen är därmed låg. Variansinflationsfaktorn för båda modellerna var högre än rapporterat av Saastamoinen och Pajunen (2016) men under allmänt accepterade gränser, vilket innebär att det finns multkollinearitet men att detta inte var perfekt multikollinearitet.

Största skillnaden mellan resultaten i denna avhandling och tidigare forskning är att det inte verkar finnas något statistiskt samband mellan byte av verkställande direktör och goodwillnedskrivningar. Detta kan eventuellt innebära att tolkningarna blivit mer enade eller så är ledningen motvillig att skriva ner goodwill kort efter att de inlett sitt arbete. Sambandet mellan BATH och goodwillnedskrivningar motsvarade däremot

resultat från tidigare forskningar vilket kan innebära att detta används som en resultatmanipuleringsmetod. Samtidigt kan dessa nedskrivningar vara berättigade. Logitmodellen hade en överlag hög träffsäkerhet för att förutspå att goodwillnedskrivningar inte skulle ske, med en nästan 100 % träffsäkerhet. Modellens förmåga att förutspå goodwillnedskrivningar var däremot svag, vilket kan tyda på att modellen inte var lämplig i och med att data i samplet var obalanserade och goodwillnedskrivningar var sällsynta. Logitmodellen är därmed inte längre lämplig för att förutspå godwillnedskrivningar.

Resultaten av regressionerna pekar mot att det skett förändringar i goodwillnedskrivningar. Faktorer som inverkar på att nedskrivningar sker och storleken på nedskrivningar avviker delvis från tidigare resultat. Det verkar som att resultat främst manipuleras neråt enligt de resultat som avhandlingen fått. Den relativa storleken på nedskrivningar har ökat och frekvensen minskat. Frågan som är svår att besvara är om nedskrivningen var berättigad eller gjordes den för att främja ledningens intressen? Avhandlingen har visat att det finns tecken på att företagsledningens beteende när det gäller goodwillnedskrivningar kan ha ändrat. Fortsatt forskning kunde utforska samma ämne med företag från andra länder. Alternativt kunde också möjliga förändringar i ledningens beteende utforskas ytterligare.

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