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Goodwill impairments, a delayed or ignored occurrence?

A study investigating if goodwill impairments within Swedish firms are delayed by three years

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Preface

We will through this preface, show our great gratitude to all who have supported us during our working process. First of all, we will direct a great thanks to our supervisor Evert Carlsson for the guidance and for all the valuable advices. Secondly, we will thank Taylan Mavruk for contributing with expertise and great support. We will also thank Anna-Karin Pettersson who has helped us understand accounting standards.

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Abstract

How to treat goodwill within firms, has always been a discussion of great relevance. New standards were introduced to Swedish listed firms in 2005, whereby goodwill should be tested annually for impairments and no longer amortized on annual basis. Since the economic recession in 2008 Swedish firms have made less goodwill impairments than what is reasonable to expect, which has resulted in experts believing that goodwill impairment can be delayed by three to four years from when the real asset loss occurs. Therefore the purpose of this study is to investigate if a three year time lag exists or not, which is examined by our regression model. The study also tests for differences in goodwill impairments between the four industries included in the research. From our test, we cannot statistically show that a relation between goodwill impairment and market capitalization exists with a three years time lag. The tests also establish that different firms treat goodwill differently.



Definitions

Bloomberg: a tool for retrieving business and financial market news

FAR: "Föreningen Auktoriserade Revisorer"

FAS 141: Financial Accounting Standard 141, Business Combinations

FAS 142: Financial Accounting Standard 142, Goodwill and other intangible assets

FASB: Financial Accounting Standards Board

GAAP: Generally Accepted Accounting Principles

IAS 36: International Accounting Standard 36, Impairment of assets

IAS 38: International Accounting Standard 38, Intangible assets

IASB: International Accounting Standards Board

IASC: International Accounting Standards Committee

IFRS 3: International Reporting Financial Standard 3, Business Combinations

Market capitalization: The market value of a firm's issued share capital (Financial Times Lexicon, 2013).

Market capitalization (adjusted) = $Market\ cap. - (Goodwill_{t+1} - Goodwill_t)$

Stata: Software for statistical analysis

SPSS: Software for statistical analysis

RFR: "Rådet för finansiell rapportering"

RR: "Redovisningsrådet"

ÅRL: "Årsredovisningslagen"



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1. Introduction

Since 2005, when new goodwill standards were introduced, Swedish listed firms have made less goodwill impairments compared to firms in other countries and compared to what is reasonable to expect during an economic downturn (Marton, 2011). Lately, indications that there is a delay in goodwill impairments compared to the loss in real assets have occurred and it is of great relevance for us to investigate whether this time lag of goodwill impairment exist or not. Previously, research has shown that goodwill impairments are not made in accordance with the new regulations and experts have loudly criticized the new standards. Our study is based on prior research and contributes to new knowledge by testing for a delay of three years in goodwill impairment. We expect to find a relationship between a decrease in market capitalization and goodwill impairment with a delay of three years.

1.1 Background

The treatment of accounting goodwill has always been a topic of great discussion in economic journals, and lately there has been an ongoing debate regarding the new regulations IFRS 3, IAS 36, and how firms have implemented these standards during the latest economic recession. In January 2005, the new standard, IFRS 3, were introduced to Swedish firms listed at the OMX, and required that goodwill should be tested annually for impairment instead of amortized as previously done (Hamberg & Beisland, 2009). Before 2005, Swedish listed firms were regulated by “Årsredovisningslagen”, ÅRL, when establishing their financial reports, which inter alia included regulations regarding treatment of goodwill numbers. In accordance with ÅRL, goodwill should be amortized annually during the time of use, but experts believed that it was incorrect to treat goodwill in this way since some goodwill do not decrease in value, and especially not linearly over time (Jennings et al, 1996).

The new regulations have been an illuminated part of the current debate since the new standards never have been applied in a global economic downturn before. Previous studies indicate that Swedish listed firms at the OMX have made less impairments of



goodwill compared to what can be expected during a recession (Gauffin & Thörnsten, 2010). According to Amiraslani, Iatridis and Pope (2013, p. 5) there is reason to believe that goodwill impairments can be benchmarked against the economic losses in stock price, and therefore it is reasonable to assume that goodwill impairments should increase in an economic downturn.

Prior research also state that goodwill write-offs has a tendency to be delayed by three to four years in relation to the economic impairment of goodwill (Hayn & Hughes, 2006). It is of great relevance to see if these previous indicators are consistent with today's situation, five years after the economic recession hit the financial market in 2008.

1.2 Problem discussion

Since the new standards were introduced in 2005, only one major economic recession has occurred, which resulted in a decrease in market capitalization. To fully analyze if impairments in fact do increase under a recession it is not reasonable to test for this right after the recession since prior research indicate that the impairment caused by the recession is likely to be delayed. Now five years have passed since the recession of 2008, and any impairment caused by the recession should have been made by now. We would therefor like to test if impairments do increase under a recession. This is relevant to test again as we believe that our results will be more reliable than prior results because our research can capture the predicted delay of impairments. We would also like to extend our research by looking at different industries to compare them with each other and examine if there are any differences among industries regarding how goodwill impairments are made in a recession. We hope the results of this examination will help us understand if goodwill impairments are in fact delayed and if any differences among our choice of industries can be seen. In addition to this, we hope our results will contribute to the current knowledge within the area and help us understand what underlying factors may or may not cause delayed impairments. To better understand these problems we have formulated the following research questions:



1. Can we show statistically that goodwill impairments are delayed by three years?
2. Can we see a difference in delayed goodwill impairments among our choice of industries?

1.3 Purpose

The purpose of this study is to investigate if firms make impairments of goodwill in accordance with IFRS 3 in an economic recession and to specifically examine if impairments of goodwill are delayed in relation to the actual economic loss in asset value as previous research indicates. Furthermore, the purpose is to analyze if there are any significant differences in impairments of goodwill between our chosen industries.

1.4 Limitations

In this study, we have limited our research to Swedish listed firms. We have only examined acquired goodwill since the other form of goodwill, accrued goodwill, is not allowed to be reported in financial statements. Further, we have chosen to limit our research to four industries, Biotech and Pharma, Telecom, Speciality Apparel Stores and Material. The selected firms are based on the firms Bloomberg has classified within each of the industry categories we have chosen. Additionally, we have excluded firms with individual revenue less than 30 million and firms without any reported goodwill at all. Totally our sample includes 27 firms distributed over the four industries. Explanations for why these limitations have been made can be found in section 2.2 Selection.

1.5 Disposition

Chapter 1 – Introduction

The paper starts by presenting the background of this subject and the underlying debate making this subject interesting and relevant for further research. Thereafter the research questions are recognized and the purpose of the paper is presented followed by limitations in the research.



Chapter 2 – Method

The method chapter includes our choice of method and a description of how the selection of industries and firms was made. In this chapter we present how we retrieved the data needed for our examination as well as our working process when analyzing the data and performing our statistical tests. One major part in this section explains how our regression models have been developed and built up.

Chapter 3 – Frame of references

The frame of reference first presents a description of the laws and regulations of the treatment of goodwill for Swedish listed firms. It includes the laws and regulations both before the introduction of IFRS 3 as well as after the introduction. Additionally, it includes a comparison between IFRS 3 and American regulations since a part of the previous research used for this study is American and thus based on American regulations. Secondly, the frame of reference presents a review of previous research relevant for this study as well as a review of the current debate within the topic. Finally, the chapter informs the reader about the economic situation during 2008 and 2012 and ends by presenting our chosen models on which our research is based.

Chapter 4 – Results

In this section we present the statistical results from our regression models and also illustrate some general statistics of our variables. Additionally, this chapter includes diagrams that show how goodwill, goodwill impairments and market capitalization are distributed over the years and between the chosen industries.

Chapter 5 – Analysis

In this chapter we analyze our results in reference to our research questions, the underlying debate and prior research as well as the laws and regulations. We also present what we believe can be possible explanations for our results based on prior studies

Chapter 6 – Conclusion

The last chapter presents the conclusions that can be derived from our analysis to answer our research questions. From our analysis, we conclude what factors are most reasonable to explain our result. Finally, we suggest topics for further research within the area.



2. Method

2.1 Chosen method

The purpose of this study is to examine if there is a time lag in when listed Swedish companies make goodwill impairments. In order to examine this we studied the annual reports from 2007-2012 for a selected number of firms to see how, when and by what amount goodwill impairments have been made. When writing and examining this kind of study it is possible to either use a qualitative or a quantitative method to fulfill the purpose of the study. A quantitative method incorporates a selection of mathematical approaches used to analyze numbers or items that can be measured in numbers. Since our study is based on a large number of observations that are expressed in numbers a quantitative method is most suitable (Eliasson, 2010 p. 21). Usually quantitative studies are associated with a deductive method, which means that ones hypothesis or research questions derives from prior knowledge within the subject and are tested by an empirical test (Föllesdal, Wallöe & Elster, 1995 p. 59). Since our study is based upon previous research where we have established our research questions based on what prior research has indicated we can determine that our study as a deductive study. Further, a quantitative method can be of great of advantage since it allows for generalizations to be made based on a small test group (Eliasson, 2010 p. 21). Thus, our study will proceed from a quantitative perspective.

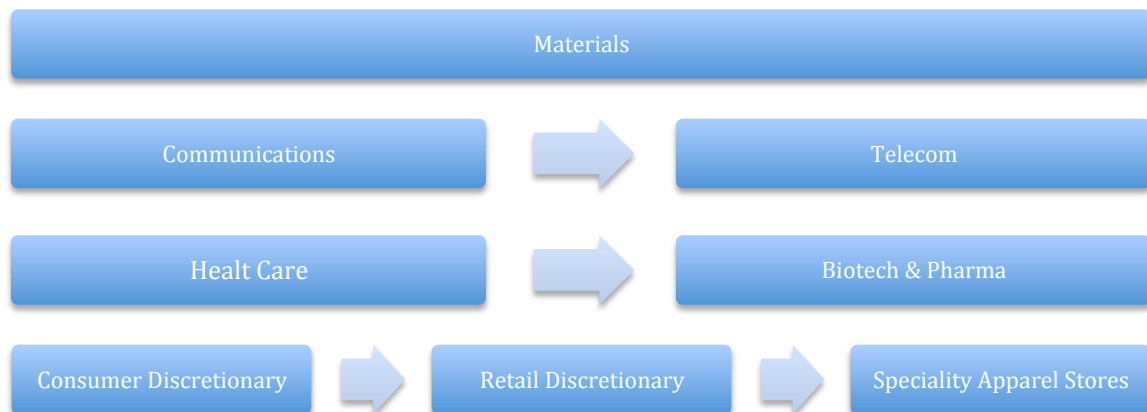
2.2 Selection

In order to fulfill the purpose of this study and examine our research questions we decide to perform a statistic test to see if we could find evidence to support our hypothesis. We decided to limit our test to Swedish firms that are listed and have a minimum of individual revenue of 30 million Swedish crowns according to Bloomberg. The limits were made because we wanted to examine whether a time lag can be determined specifically for Swedish firms, and set the minimum limit for individual revenue to 30 million Swedish crowns because we believe that firms with individual revenue below this limit are not presumed to give as reliable results as bigger firms.

Further, we focused on listed firms only since they are the ones obliged to follow the regulations of IFRS 3. It is also easier to find relevant information about listed firms, which makes the test easier to conduct as well as more valid.

Because of limitations in time it was not reasonable to conduct the test for all firms on the Swedish stock market, and therefore we decided to focus on four industries that was of special interest for our tests. First of all the majority of the firms within the industry had to have reported goodwill in their annual reports to be elected. Thereafter, we decided to choose two industries that are presumed to have a high level of goodwill and two industries that are presumed to be hit extra hard by the recession in 2008. Based on these requirements we choose the Pharma and Biotech industry and the Telecom industry as the industries presumed to have high level of goodwill in relation to total asset (IFRS – I teori och praktik, p. 79 2013) and materials and specialty apparel stores as the industries presumed to struggle extra hard in a recession. How our industry selections were made in Bloomberg are shown below. Totally, 27 firms met the requirements and were included in the study.

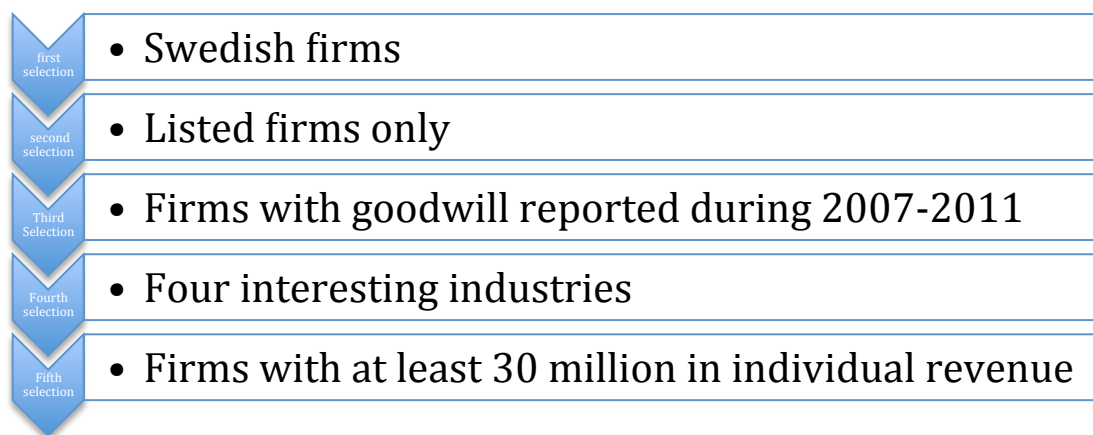
Figure 1: Industry selection in Bloomberg



The apparel stores are presumed to struggle harder than other in a recession because it include discretionary goods which consumers tend to buy less of in recession. The material industry is also presumed to be hit harder than other industries in a recession because this industry is highly dependent of export and as mentioned earlier the export was doing poorly under the recession in 2008. The reason for basing our choice upon

these specific requirements is because we believe that goodwill impairment is likely to have occurred for these industries, which make them a reliable foundation to base our test on. To find the firms of our selection we have used lists from Bloomberg and therefor, our selection within these industries have been based on the firms Bloomberg classify under each of these categories. Eventually, our sample of firms was limited to 27 firms, since some firms did not have goodwill reported between the years within the study.

Figure 2: Firm selection



2.3 Working Process

Our choice of topic was primarily based on the relevance and timeliness of how to treat goodwill and goodwill impairments within firms today. The process started with a search for and a collection of relevant studies and prior written articles regarding goodwill and how goodwill have been regulated and treated during the last decades. Thereafter, we directed our focus to the regulations in order to fully understand the international standards IFRS 3 and IAS 36 and to gather great knowledge about the chosen subject. All this information, eventually served as a basis for our limitations presented above in section 3.2. Our focus was to find an interesting selection of firms, which could be applicable for a quantitative study and for our statistical tests. As soon as our selected firms were determined we started to collect data and numbers regarding goodwill, goodwill impairments and market capitalization for all firms.



2.2.1 Data Retrieval

The information about the financial situation of the firms in our selection has been retrieved from their annual reports, which was downloaded from a database provided by “Göteborgs Universitet” named “Retriever Business”. “Bloomberg” is the name of the database from where we have downloaded each firms’ reported numbers of amount of goodwill, impairment of goodwill as well as information about each firms’ value of market capital for the year 2006 to 2012. All numbers are collected at the balance sheet date for each firm. Since it was difficult to find reliable numbers for firms’ goodwill impairments in Bloomberg we investigated the true numbers specified in the firms’ annual reports manually. Information regarding goodwill impairment can usually be found in the note where intangible assets are presented in the annual reports.

When finding information about the laws and regulations regarding goodwill we have used the database “FAR komplett” and “FAR samlingvolymen 2010”. From “FAR Komplet” we have also retrieved articles published in the magazine “Balans” which partly frames what we have presented as the current debate. Other scientific articles relevant for this study have been through the databases provided by “Göteborgs Universitet” mainly via the “Business Source Primer”. Most of these articles have been published in journals within the finance, accounting and accounting area. Relevant books have also been found via the databases provided by “Göteborgs Universitet” and retrieved in economic libraries.

2.2.2 Processing data

After collecting all data needed to perform our tests we sorted and structured the data in Excel and SPSS. In Excel, we stored all data available to be able to make calculations and adjustments in order to get as correct numbers as possible for our tests. Primarily, we adjusted the market capitalization by subtracting the change in goodwill between two periods from the initial market capitalization. We make this adjustment since we want to examine the fluctuations in market capitalization without the influence of additional goodwill firms may acquired during the years included in our study. Further on, we



exported all data into SPSS to label and encode all variables and thereby facilitating our future test. First of all, the four industries, the 27 firms and the five years included in our study were encoded into numbers. For instance, the four industries were encoded as following: 1= Apparels, 2= Materials, 3=Telecom, 4= Biotech and Pharma, and the firms were encoded into numbers from one to 27. We also encoded the years as following: 1=2007, 2=2008, 3=2009, 4=2010 and 5=2011, which should be kept in mind while analyzing our diagrams below. Secondly, we exported numbers for goodwill impairments and adjusted market capitalization for all our observations into SPSS to thereafter be able to transfer all numbers and codes into Stata, in an easy way.

2.2.3 Regression model

Meanwhile the data was processed, we started to design our regression models, which are supposed to answer our research questions. In the models the change in market capitalization is the independent variable and goodwill impairment is the dependent variable. Since earlier studies state that stock prices are a good reflection of the magnitude of a firm's economic loss, we found it suitable to have market capitalization as the independent variable in our research models (Amiraslani, Iatridis & Pope, 2013 p. 5). If a decrease in market capitalization occurs we expect the model to generate a positive value in goodwill impairments, but if market capitalization increases we expect goodwill impairment to be zero, since goodwill impairment cannot be brought back. Since we expected these reactions we made a two-tailed test, which means we tested whether beta differs from zero or not.

Model 1 tests if there is a correlation between the size of goodwill impairment and the change in adjusted market capitalization during period t , for firm i , where $t=2008$. Model 2 illustrates the time lag that we are supposed to investigate if it exists or not. This model test for the correlation between the size of goodwill impairment in period $t+3$, for firm i and change in market capitalization in period t for firm i , where $t=2008$ and $t+3=2011$.



Model 1: Regression model excluding time lag

$$\text{Goodwill impairment}_{i,t} = \alpha_i + \beta_i * \Delta \text{market cap}_{i,t} + \beta_2 * D_2 + \beta_3 * D_3 + \beta_4 * D_4$$

Model 2: Regression model including time lag

$$\text{Goodwill impairment}_{i,t+3} = \alpha_i + \beta_i * \Delta \text{market cap}_{i,t} + \beta_2 * D_2 + \beta_3 * D_3 + \beta_4 * D_4$$

To design these models we analyzed our collected data in order to determine which models were most suitable to get a reliable answer. First of all, we encoded our data as panel data. When encoding data as panel data one can observe variables on more than one occasion and also control for variables that cannot be observe or measure, for example differences in business factors among firms or factors that changes over time, but not across entities (Data & Statistical Services, p. 2-3). The observations within our study are taken from more than one occasion and also from different time periods, which allows us to categorize our data as panel data.

When using panel data, we can encode our panel data whether as random effect or fixed effect. Fixed effect is used as a tool to control effects from individual characteristics that may impact a variable. For example, such individual characteristics can be firm specific properties that differ between firms. By using fixed effects we can assess the predictors' net effect and consider the individual characteristics as equivalent among the observations (Data & Statistical Services, p. 9). On the other hand, random effects are more accurate to use if there is reason to believe that differences across observations can have impact on your dependent variable, which in our study corresponds to the amount of goodwill impairment each firm have made during 2007-2011 (Data and Statistical Services, p. 25). Since we do have reasons to believe that firm specific characteristics exist and may affect firms' goodwill impairment we have chosen to



encode our panel data with random effect, but also because our study includes relatively few observations, which means we cannot generalize all individual effects as fixed effects.

Further more, we have developed the regression model called “xttobit” regression, also known as censored regression model. “Tobit” regression, tests if a linear relationship can be found between different variables if the dependent variable is either right censored or left censored. A right censored variable is a variable that cannot exceed a specific value and a left censored variable is a variable that cannot be below a specific value (UCLA, 2013). Since our dependent variable, amount of goodwill impairment, cannot take on a value less than zero it is a left censored variable, and we had to take that into consideration when designing our regression models. As a result we made a so-called “censoring from below”, which means that all values lying at or below some threshold value become censored (UCLA, 2013). In our case the threshold value corresponds to zero.

To be able to investigate if there are differences in goodwill impairments among the chosen industries we encoded dummy variables for three of the four industries and used one industry as a benchmark. A dummy variable is a characteristic variable that only can take on two values either 1 or 0. If an observation fulfill the requirements for a specific characteristic the observation is encoded as 1 and becomes active whenever that characteristic are present (Spssakuten, 2010). After testing which industry to use as a benchmark in order to get the highest statistical significant level in the test we could determine that our apparel industry was the most suitable one and thereby dummy variables were encoded for the Material industry D_2 , the Telecom industry D_3 and the Biotech and Pharma industry D_4 . Finally we have tested the models with a five percent significant level since we found that level sufficient for our tests.

2.6 Reliability and validity

This study and its tests have been based on information and numbers retrieved from databases and annual reports. Information of this kind is categorized as secondary data



and this must be kept in mind when analyzing the results. For the results to be reliable and trustworthy it requires the information to be accurately presented in databases and annual reports as well as accurately retrieved and used in the study. The sources of information used are seen as objective sources of high-quality information regarding this matter and since the information is available to the public the test can easily be conducted again. Therefore, we presume the study has a high level of reliability. We also presume the study to have high level of validity since, the tests have, to the best of our ability, been conducted in an appropriate manner in reference to what the study aims to examine.

We do realize that the study can, however, be met by some criticism. The information and numbers that the study is based on can be retrieved or interpreted incorrectly. In addition to this, the study may also have been conducted on a sample too small to make general conclusions. It may also be too soon to conduct the test we have made since firms have not entirely adopted the regulations yet and the recession may not have ended.



3. Frame of References

3.1 Definition of Goodwill

Goodwill is an intangible asset and can be divided into two different categories, accrued goodwill and acquired goodwill. The value of accrued goodwill is very difficult to estimate correctly and therefore it is not reported in financial statements (IAS 38). Acquired goodwill, on the other hand, should be reported in financial statements and arises when one firm acquires another firm. To put it simple, the value of acquired goodwill amounts to the difference between the acquired firm's assets and the price paid for the firm (IFRS 3, p. 32). Goodwill includes components such as reputation, brand name, patent or a valuable customer relation (IFRS 3, p. 13). In this report, we will only refer to acquired goodwill unless otherwise specified.

3.2 Regulations prior to the introduction of IFRS 3

Businesses that are listed within the EU are as of 2005 obliged to establish financial reports in accordance with the standards and regulations undertaken by the EU. The EU has agreed to follow standards given out by the International Accounting Standards Board (IASB). IASB is an independent foundation trying to harmonize accounting standards internationally. They have given out standards under two different names, before July 2003 the standards were named International Accounting Standards (IAS) and thereafter International Financial Reporting Standards, IFRS (Lönnqvist, 2012 p. 19). Since Sweden is a member of the European union Swedish firms are obliged to follow the regulations the EU has undertaken. Besides this, Swedish firms are also obliged to follow recommendations and statements specific for Sweden made by "Rådet för finansiell rapportering" (RFR). These recommendations are meant to complete to IFRS and IAS on how to implement the standards, and how to regulate areas that call for further regulation to still be in line with Swedish law. (FAR, p. 1429)

Before 2005, listed firms were instead obliged to follow "Årsredovisningslagen" (ÅRL) when establishing their consolidated financial report. According to ÅRL, goodwill should



have been valued as an intangible asset and systematically amortized over its period of use, which was said to be five years. If a longer period of use was preferred, information about this should be left in the financial report along with the reason for this.

Impairments should have been made if the asset had decreased in value on the balance sheet date and if the impairment was believed to be permanent (ÅRL kap 7, p. 21; kap 4, p. 4-5).

In addition to ÅRL, recommendations made by “Redovisningsrådet” presented ways of how to implement the laws regulated in ÅRL. The recommendations were aimed at businesses that were listed (Bokföringsnämnden, 2013). The treatment of goodwill for listed firms was regulated by the recommendation “RR 1:00 Koncernredovisning”, which stated that goodwill should be reported to its purchase value in the balance sheet and amortized systematically over its period of use. The period of use should have reflected the time period for when the firm believed the goodwill would bring economic profits. The period of use was presumed not to exceed twenty years, but in special cases there may have been reason for using a longer period of use (RR 1, p. 54). When there was reason to believe that the value of goodwill may have decreased, regulations regarding this could be found in “RR 17 Nedskrivningar” (RR 1, p. 65). If the recoverable amount of goodwill was less than the book value, impairments should have been made, and recognized as a loss in the income statement. Impairments could be brought back if circumstances change, and if there were reasons to believe the recoverable amount was higher than the book value (RR 17, p. 98). Even if there were no reasons to believe that impairments were needed it had to be tested at least once a year if the period of use exceeded twenty years (RR 1, p. 66). As of the first of January in 2005 “Redovisningsrådet” is no longer applicable when establishing consolidated financial reports. Instead standards regulated by IASB should be used (Bokföringsnämnden, 2013).

3.3 Regulations post the introduction of IFRS 3

In 2001 the Financial Accounting Standards Board (FASB), which are in charge of the Generally Accepted Accounting Principles (GAAP) in the United States, introduced two



new principles, “FAS 141 *Business Combinations*” and “FAS 142 *Goodwill and other intangible assets*”. The new principles changed the regulations concerning business acquisitions, goodwill and intangible assets in America. Since international convergence is desired the IASB, in charge of European accounting regulations, decided to introduce regulations in line with FASB’s to make comparison between firms more reliable internationally. In 2004 ISAB therefor introduced “IFRS 3 *Business Combinations*” which regulates issues concerning business acquisitions for European firms. The new standards are accompanied by revised standards, “IAS 36 *Impairment of assets*” and “IAS 38 *Intangible assets*”, replacing the previous standard within the area, “IAS 22 *Business combinations*” (Deloitte, 2004). The purpose of the new standard, IFRS 3, is to improve the relevance and comparison between financial reports, but also to make the information, reporting firms should provide regarding an acquisition, more consistent in order to increase the reliability of financial reports (IFRS 3, p. 1).

According to IFRS 3, goodwill occurs when one firm is acquiring another firm, and it amounts to the difference between the acquired firm’s assets and the price paid for the firm (IFRS 3, p 32). The value of goodwill should reflect the value of future economic profits the asset is projected to generate. When acquiring a business, in accordance with IFRS 3, firms must use the so-called “acquisition method” (IFRS 3, p. 4). Prior to the introduction of IFRS 3 other methods for acquisitions were allowed, such as “the pooling method”. However, no other methods than the “acquisition method” are longer permitted.

The “acquisition method” includes four steps that must be followed:

1. Identification of the acquirer
2. Identification of the time of acquisition
3. Reporting and valuing acquired assets, debt and other possible holdings without determinant influence in the acquired firm.
4. Reporting and valuing goodwill or profits from an acquisition at low price.

The valuation of goodwill should be in accordance with “actual value” at the point of acquisition (IFRS 3, p. 18).



After identifying the acquirer and the time of acquisition, the acquirer should report all identifiable asset and debt and other possible holdings (if they meet the requirements of an intangible asset in accordance with IAS 38 *Intangible assets*) to actual value. Goodwill meets the requirements of IAS 38 and is therefor reported as an intangible asset but because it does not fall under the category of identifiable assets according to IFRS 3 in a business acquisition, it is categorized as goodwill (IFRS i teori och praktik, 2013) and regulated under the IAS 36. Since goodwill is not itself an identifiable asset it must, after the time of acquisition, be derived to a cash-generating unit, according to IAS 36. A cash generating unit is defined by the IAS 36 as follows: “The cash generating unit is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets”.

According to the standards of IFRS 3 goodwill should no longer be amortized on a yearly basis. Instead, the firm should test for impairment if there is reason to believe that the goodwill has decreased in value, meaning that the projected future economic profits the asset would generate are no longer presumed to be realized (Lönqvist, 2012 p. 39). The impairment test should be done annually or whenever there is reason to believe that the goodwill is impaired. If the goodwill turns out to be impaired the loss is reported in the income statement (Lönqvist, 2012 p. 39). IFRS 3 allows for goodwill to stay at a constant level but it can never be valued over its initial value and if goodwill is impaired and written-off that value can never be recovered. These regulations have been met by some criticism since there is room for subjective valuation of goodwill and because there are limitations in what value goodwill can take on, which may be misleading (Lönqvist, 2012 p. 40).

When annually testing for impairments the regulations of IAS 36 “*Impairments*” should be implemented. (IFRS 3, p. B63)

3.3.1. IAS 36 Impairments

At least annually tests for goodwill impairments should be done. They can be done at any time during the year as long as they are consistently made at the same time each



year (IAS 36 p. 96). Generally, impairment tests should be done whenever there is reasons to believe that the future economic profits goodwill was projected to generate can no longer be realized (Lönngqvist, p. 39). Impairment tests should also be done in case circumstances indicate any of the following:

- If there are indications on that the value of the asset has decreased significantly during the time period for other reasons than the age of the asset or its normal usage.
- If significant changes during the time period within technique, market conditions or economic/legal circumstances for the market, that the asset is aimed for, which has negative effects for the firm.
- If market interest rates or market rates of return on investments have increased during the period, in a way likely to affect the discount rate used to calculate the asset's value and therefor significantly reduce the asset's recoverable amount.
- If the firm's book value of equity exceeds its market value.

From internal sources of information:

- If there is evidence on the asset being aged or damaged.
- If during the time period significant changes have occurred or is expected to occur in a near future, which in a negative way will affect the possibility to use the asset for its aimed purpose.
- If internal reports indicate that the return on the asset is lower or will be lower than initially predicted.

Dividend from subsidiaries, jointly controlled firms, and firms of interest:

- If the investor recognizes a dividend from investment in a subsidiary, joint venture or firm of interest, and it can be shown that:
 - The carrying amount of the investment in the separate financial statements exceeds the carrying amount of the parent's net assets, including the related goodwill in the consolidated financial statements, or
 - Dividend exceeds the subsidiary's, joint ventures' or firm of interests' total income for the period in which the dividend was determined.



In addition to this, impairment test should also be done in case the following circumstances from internal reporting indicates that:

- The expense for purchase or maintenance of the asset has increased significantly compared to what was initially budgeted for.
- The asset's actual cash flows or operating income have been significantly less than what was initially budgeted for.
- The cash flows or operating income that was budgeted for has significantly decreased or a budgeted loss connected to the asset has significantly increased.
- The asset generates a negative cash flows or operating income when the amount for the specific time period or the budgeted following time periods is summed. (IAS 36, p. 12-14)

The proceeds when testing for impairment of goodwill is described in IAS 36: "goodwill must be allocated to each of the acquirer's cash-generating units, or groups of cash-generating units, that are expected to benefit from the synergies of the combination, irrespective of whether other assets or liabilities of the acquire are assigned to those units or groups of units. Each unit or group of units to which the goodwill is allocated shall (IAS 36, p. 80):

- represent the lowest level within the entity at which the goodwill is monitored for internal management purposes; and
- not be larger than an operating segment determined in accordance with IFRS 8 "*Operating Segments.*"

The cash-generating units to which goodwill has been allocated should be tested for impairments by comparing the book value of the unit to its recoverable value. If the recoverable value is higher than the book value impairment is not needed. If, on the other hand, the recoverable value is less than the book value impairment is needed (IAS 36, p. 90). It should be reported in accordance with IAS 36 (p. 104) and immediately reflected in the result (IAS 36, p.60). Goodwill can never be reversed because it is highly likely that the recoverable value of goodwill later on is made up by accrued goodwill and should therefor not be reported in financial statements (IAS 36, p.124-125).

The recoverable value of an asset defined in IAS 36 is the highest of the actual value,



when subtracting cost of sales, or the usage value (IAS 36, p. 6). Actual value can be calculated from the price that would be received on the point of sale or the price that would be paid for an asset when transmitting the asset through an organized transaction when subtracting for cost of sales (IAS 36, p. 6). The actual value should reflect the assumptions market operators would use when determining a price for the asset (IAS 36, p. 54).

The value of usage is defined as the present value of the future cash flows the asset is believed to generate (IAS 36, p. 6). A few aspects of the value of usage should be considered when determining this value. These aspects are as follows, according to (IAS 36, p. 30):

- An estimate of the future cash flows, the firm expects the asset to generate
- Expectations regarding variations in future cash flows regarding their size and timing
- The time value of the cash flows, represented by a risk-free rate
- The price of the uncertainty in carrying the asset
- Other factors that market operators would consider when putting a price on the cash flow, the firm is expecting the asset to generate.

The risk-free rate, used for calculating the time value of money, should reflect current market assessments of the time value of money and the risk associated with the future cash flows the asset is projected to bring (IAS 36, p.55). If the risk-free rate is estimated accurately it should be the same return an investor would require for an investment of the same size and of the same risk-profile as the firm is expecting from their asset.

In the financial reports, extensive information for each and every one of the essential impairments done during the year should be left. IAS 36 requires information about the events and circumstances that led to the impairment and its amount, along with information regarding the characteristics of the cash-generating unit. Firms should also specify if the recoverable value of the asset is based on its actual value, when subtracting for cost of sales, or its value of usage. If actual value has been used the firms must specify



on what ground the valuation has been made, and if value of usage has been used, the risk-free rate used must be specified (IAS 36, p. 130).

In addition to this, further information must be left in the financial report about the cash-generating unit to which a significant amount of goodwill is allocated. The information required by IAS 36 (p. 134) include the reported value of goodwill allocated on the cash-generating unit as well as the recoverable value of the cash-generating unit, and on what basis this value has been determined. If the value of usage has been used to determine the recoverable value the following information must be left:

- Each important assumption made by management regarding the cash flow forecast and assumptions to which the unit is most sensitive for.
- A description of the method used to determine the value of each assumption, and whether it is based on prior experience or external sources of information, and also if these have changed since past years.
- The time period used for the projected future cash flows the cash-generating unit is projected to bring. If the time period exceeds five years this must be explained.
- The growth rate used to establish the cash flow forecast and motivation for this.
- The discount rate used in the cash flow forecasts.

3.5 Previous research

The treatment of goodwill has been under great debate for decades and differing opinions regarding how it is most accurately valued tend to pop up rather frequently. Before the millennium shift, goodwill was subject to systematic amortization over a period of use no longer than either twenty or forty years depending on if looking at American or European standards (Jennings et al, 1996; RR1 item 54, 2007). Since the current ones were highly criticized, new standards were called. For example, in the study “The relation between accounting goodwill number and equity values” written by Jennings et al., (1996) the authors found that there is a negative association between equity values and goodwill amortization suggesting that goodwill may not be declining in value, and if so, linear amortization is a highly inappropriate model to use. The study also suggests, that for the firms where a decline in goodwill is recorded the declining



rate is substantially differing from the rate of amortization, which indicates that the amortization model is misleading. The study also found, that investors see goodwill as representative of valuable economic resources, something that later studies (AbuGhazaleh, Al-Hares & Haddad, 2012) have determined as well. AbuGhazaleh, Al-Hares and Haddad's (2012) study, suggests that the treatment of goodwill is taken into account by investors, and therefore, proper valuation methods are required. To more accurately account for goodwill the authors, Jennings et al. (1996), suggest that goodwill should be tested annually to see if a decline in value in fact has taken place. Only if the test indicates that impairment has occurred, goodwill should be written-off.

In 2001, the Financial Accounting Standards Board (FASB), which is in charge of the Generally Accepted Accounting Principles (GAAP) in the United States, introduced two new principles, "FAS 141 Business Combinations" and "FAS 142 Goodwill and other intangible assets" in line with what Jennings et al.'s (1996) study suggested. The new standard eliminated amortization of goodwill and instead allowing for annual impairment tests. In a study made by Churynk (2004) the appropriateness of the new standards was examined. Churynk (2004) found evidence for that the amortization of goodwill is not warranted and that goodwill may be subsequently impaired, which calls for write-offs, and therefore supports the establishment of FASB's new standards regarding the treatment of goodwill.

Even though the new standards were warranted, they did also come with some complications (Churynk, 2004). The annual impairment tests, called for evaluation of goodwill to a fair value by managers, which can be difficult to determine since the projected future cash flows that goodwill can bring are hard to estimate (Hayn & Hughes, 2006). When estimating future cash flows, the possibility for subjective determination by managers is likely to occur, which could lead to inconsistency in goodwill valuation among firms. Since fair value determination of goodwill made by managers, leaves room for possible uncertainty regarding goodwill, it puts more pressure on investors and auditors to thoroughly analyze the accuracy of the goodwill evaluation (Hayn & Hughes, 2006). To determine if investors and auditors actually can make accurate assessment of the value of goodwill, based on the information available



to them from financial statements and disclosures, Hayn and Hughes (2006) examined this in their study. They found that the quality of financial statements on this matter is poor and does not provide investors and auditors the information they need to properly evaluate management determination of goodwill value and goodwill impairment. This is of great concern because it limits the reliability of financial statements.

Hayn and Hughes (2006) also found indications that there is a significant time lag, usually of three-four years but sometimes up to ten years, between the goodwill write-off and the actual deterioration of the impairment, which further limits the reliability of financial statements. The findings of Hayn and Hughes' study are supported by the findings in another study made by Bens, Heltzer and Segal (2011), which found that the information content of goodwill write-offs decreased after the introduction of the new standards. This means that the effect that was hoped for when introducing the new standards of a more fair goodwill valuation was not completely accomplished.

Support for the findings of goodwill impairment, contributing to less reliable financial statements, can also be found in a European study made by Hamberg and Biesland in 2009. The authors examined what affect the new accounting standards of IFRS 3 has on the accounting information's capability to explain stock returns, and found that the value relevance of accounting earnings is significantly lower after the introduction of IFRS 3. This suggests that the value relevance of earnings has decreased.

In a recent study AbuGhazaleh, Al-Hares and Haddad (2013), it was found that investors did not account for amortization when evaluating firms on the stock market but they do account for impairments. This can be explained by the fact that impairments usually are expected to be of a larger magnitude than amortizations were. The fact that investors impound impairments to a much larger extent than they did amortization is concerning, since the financial statements tend to be less reliable regarding this matter after the introduction of the new standards.

As stated earlier, standards settlers try to harmonize American accounting standards with European standards. In general terms the IFAS and the FSAB regulate goodwill very



much alike. However, as mentioned above, on some matters they differ a bit. This must be taken in to consideration since the research based on American firms may reach conclusions not always applicable for European firms. When there are reasons to believe that the conclusions made on American firms are not applicable for European firms we will clarify this. However, in this study and with reference to what is aimed to examine we should be able to use the conclusions made for American firms on European firms as well.

3.6 Underlying debate

Almost every year when firms' annual reports are submitted the debate regarding goodwill impairment is resurfaced. Since the introduction of IFRS 3 and IAS 36 experts have loudly discussed and criticized the new standards. Previous research indicates that goodwill impairment have not been made in the same extent as annual amortizations was made, which prior regulations required. A study made by Gauffin and Thörnsten (2010) shows that Swedish, listed firms made less impairments of goodwill during 2008 than listed firms in the USA. All though, both countries have almost identical regulations regarding goodwill and firms have similar amount of goodwill in relation to total assets (Gauffin & Thörnsten, 2010). In 2008, the total value of goodwill was summed up to 613 billions SEK for all 259 Swedish firms included in Gauffin and Thörnsten's study, and noticeable only 1.5 percent of this amount was impaired during the same year. This is a very small number compared to the goodwill impairments made in American firms during the same year, which on average made impairments corresponding to 30 percent of the total value of goodwill (Gauffin & Thörnsten, 2010).

Another article from 2011, written by Marton, presents one possible explanation to why Swedish firms have not made goodwill impairments in the same extent as firms in the United States. Marton (2011) states that the enforcement of regulations is relatively weak in Sweden compared to the enforcement in the United States and as a result of this, impairments of goodwill have been absent in several Swedish firms during the past years.



Due to the lack of goodwill impairment in Swedish firms the share of goodwill in relation to total assets and equity have increased steadily in Swedish firms since the introduction of IFRS 3 in 2005 (Marton, 2011). This phenomenon is also confirmed by Gauffin and Thörsten's study from 2010. Their research determines that more and more commonly, goodwill represents a large part of total assets in Swedish firms, and in 2008 the total value of goodwill for the 259 firms within the study corresponded to almost one third of the firms' total equity. This may as well indicate that Swedish firms are relatively sensitive to changes in goodwill.

What also emerges in Gauffin and Thörnsten's research of 2010 is that Swedish firms made surprisingly little impairment during the financial crisis in 2008. Of all the 259 firms that were included in the study, only 37 of them made goodwill impairments during that year. Gauffin and Thörnsten do not believe that the few impairments were caused by a minor need for impairment, but instead they argue that it could have been caused by managers' unwillingness to impair the goodwill in a time of uncertainty and when the stock market tend to fall. These speculations are shared by many experts, and can possibly be the underlying factor for why there are reasons to believe that impairments are delayed with three to four years.

In one recent research two professors and one researcher at Cass Business School in London investigate whether goodwill impairments are related to firms' reductions in stock market values (on a sample of European firms). The authors stresses that in an efficient market, stock returns is a measurement that reflect the magnitude of a firm's economic loss, and based on this assumption they perform their tests to see if the impairment losses are in fact recognized and reported at the time of occurrence (Amiraslani, Iatridis & Pope, 2013 p. 5). The authors find that the time for when the impairment is made differs a lot among European firms, suggesting that the IFRS standard is not implemented consistently among all firms it applies to. The study also finds that the most accurate time for when impairment recognition has been made can be found for firms with a business climate of high regulatory enforcement. For firms operating in a business climate with relatively low regulatory enforcement the time of impairment recognition tends to be less accurate (Amiraslani, Iatridis & Pope, 2013 p.



5). The researchers divide countries into three different clusters depending on their level of regulatory enforcement and scale them from one to three. Cluster one, consists of countries with high level of regulatory enforcement and therefore generally have accurate time for impairment recognition while cluster two consists of countries with low level of regulatory enforcement, and low level of accuracy in recognizing goodwill impairment. Cluster three has even lower levels of regulatory enforcements and accuracy in recognition of impairments than cluster one and two. Sweden ended up in cluster two, suggesting that the regulatory enforcement is relatively weak, and therefore impairment recognition tend to be less accurate. For clusters two and three where regulatory enforcements are low the impairment recognition tend to be delayed by three to four years for cluster two and even longer for cluster three.

The research also shows that the number of Swedish firms that made goodwill impairments during 2010 and 2011 are slightly less than the European average. During 2010 and 2011, 9.24 percent of all Swedish firms within the study made goodwill impairments compared to 9.34 percent of all the European firms within the research. What is interesting about this is that Swedish firms have vastly more goodwill in relation to total assets than other European firms, which indicates that Swedish firms should have high impairment intensity, and therefore should be expected to impair their goodwill to a larger extent (Amiraslani, Iatridis & Pope, 2013 p. 23-24). Since Swedish firms did not impair their goodwill as much as they were expected, it supports the conclusions the researchers found about Sweden being in cluster two, where the regulatory enforcement is low, which results in a time lag of the goodwill impairment.

As previous research indicates, a time lag of goodwill impairment exists, and therefore, we would like to test for this to see if these indications are correct. We find the timing for performing such a test perfect at the moment, since a few years have past since the recession of 2008, where high impairments were expected. Performing this test now would capture the predicted time lag of impairments.

4. Empirics

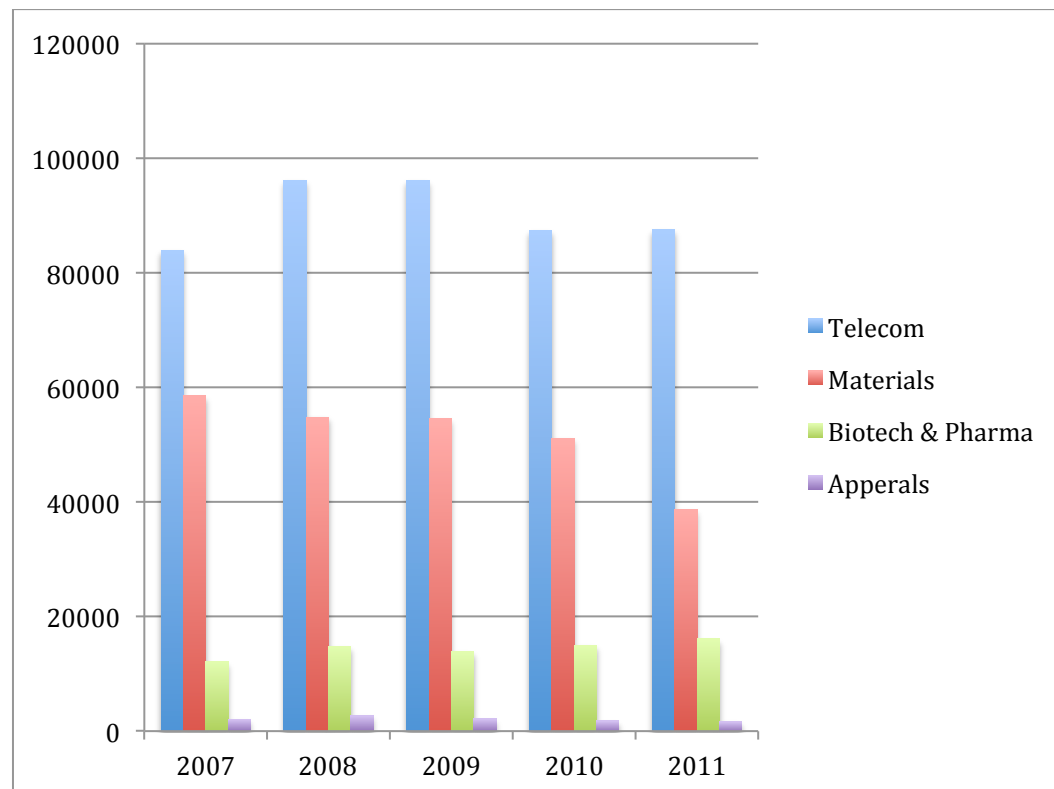
In this study we have analyzed the 27 firms distributed over the four industries of our selection and their reported numbers for market capitalization, goodwill and goodwill impairments between the years of 2007 and 2011. Based on the requirements we set up for the firms it resulted in a differing number of firms within each industry of our selection. The table below presents how the numbers of firms are distributed over the industries. This must be kept in mind when analyzing the results.

Table 1: Industry Statistics

Industry	Telecom	Materials	Biotech & Pharma	Apparels
Number of firms	7	9	6	5

To get an overview of the data used for our tests we have structured our variables into diagrams presented below.

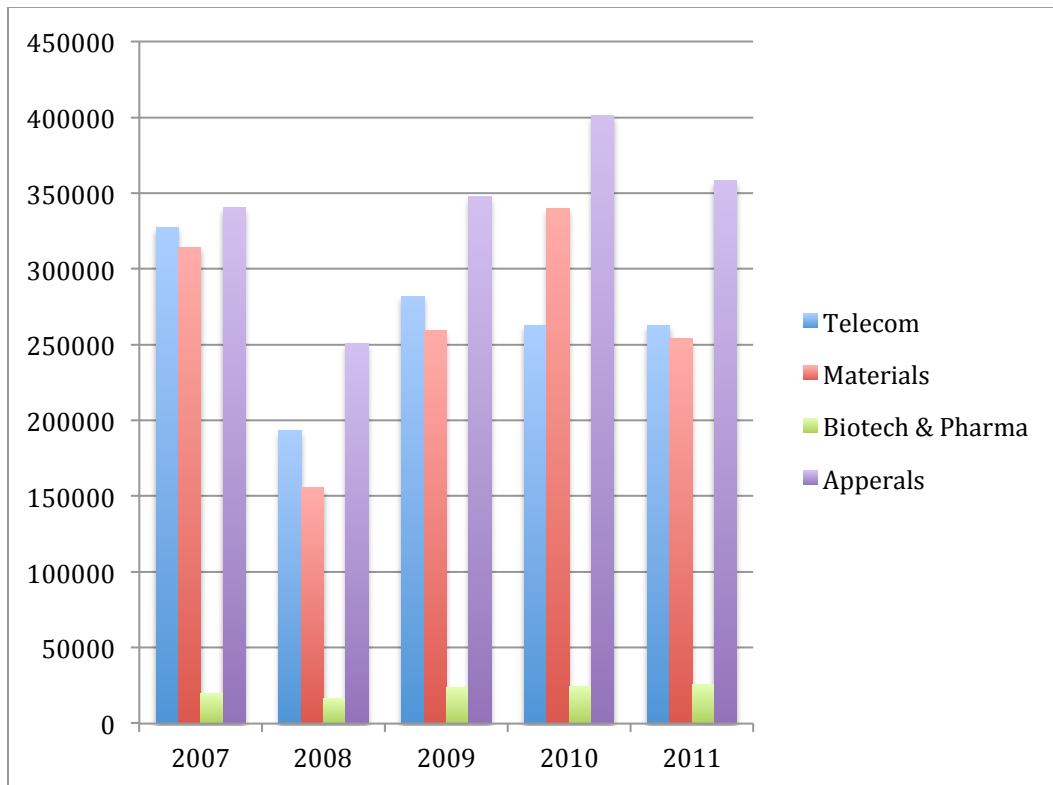
Diagram 1: Amount of goodwill per industry



Amount of goodwill in million SEK

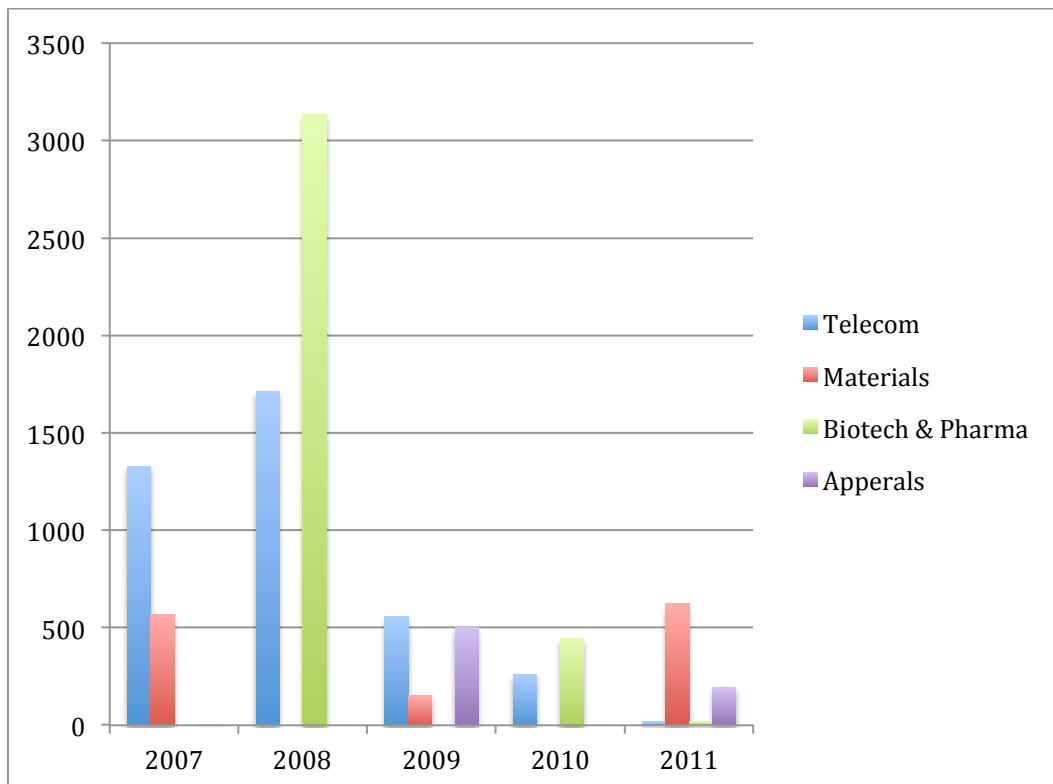


Diagram 2: Market Capitalization per industry, adjusted for possible acquisitions



Market capitalization in million SEK

Diagram 3: Goodwill impairment per industry





We wanted to see the characteristics of the goodwill and market capitalization variables and therefore we made a descriptive test for these variables in STATA, presented in the table below. As shown, the standard deviation is large relative to the mean both for market capitalization and for goodwill. This indicates that there is a large spread in market capitalization as well as the amount of goodwill among the firms. The table also shows that the amount of goodwill cannot take on a negative value but there is no limit in how large the value of goodwill can be. As stated earlier, this variable characteristic requires the test to be performed with an “xttobit” regression model.

Table 2: Statistic Characteristics

Characteristics table	number of obs.	mean	std. Dev.	min	max
Goodwill	134	1494,318	16489,29	0	190908
Market Cap.	134	33695,54	77040,25	14,459	392914,1

4.1 Results

4.1.1 Research question 1

In the first test performed in Stata, we tested to see if we could find support for our hypothesis of a time lag in goodwill impairment. The results are shown in the table below. To statistically ensure that there is a time lag in goodwill impairment we look at the p-value (prob>chi2) for the test. If it is below 0.05 the time lag is statistically significant but if the p-value exceeds 0.05 we cannot ensure that the time lag exists. As shown the p-value amount to 0.2237, which means that we cannot statistically prove that there is a time lag in goodwill impairments in the sample.

Table 3: Regression including time lag

Goodwill impairment, time lag	Coef.	Std. Err.	z	P> z	Prob>chi2
Adjusted market cap	0,1494853	0,2451375	0,61	0,542	0,2237

To be able to compare the results in our model we decided to perform the same test once again but without the time lag (comparing change in market capitalization for 2008 with the impairment value for 2008 instead of 2011). This test generates a p-value (prob>chi2) of 0.3388, which also exceeds 0.05 and therefore we cannot statistically



ensure that there is a relation between the change in market capitalization and the goodwill impairment made the same year either. Because we get such high p-values in both tests we can determine that our regression model is weak, which is important to be aware of while analyzing our study. However, it is interesting to see that when performing the first test we get a lower p-value compared to the second test. This indicates that the model becomes stronger including the time lag than for a relationship between impairment the same year as the market capitalization declines.

Table 4: Regression excluding time lag

Goodwill impairment time lag	Coef.	Std. Err.	z	P> z	Prob>chi2
Adjusted market cap	-0,0050515	0,0757109	-0,07	0,947	0,3388

4.1.2 Research question 2

To answer research question two we performed a test between the industries to see if we statistically could find differences among the industries in how much they impair goodwill. The test was conducted using numbers for time lag and was aimed to test to see if the time lag was more obvious for any of the industries. As stated earlier we used Apparel as a “benchmark industry”. The test was performed in Stata and the results are presented below. To see if we can statistically show differences among the industries we look at the p-value (P>|z|) for each industry. If they have a p-value below 0.05 we can statistically prove that they impair their goodwill with time lag to a smaller extent than the benchmark industry. Materials and Biotech and Pharma have p-values below 0.05, which means that goodwill impairment with time lag is less obvious for them than for the Apparel industry. For the Telecom industry, the p-value exceeds 0.05 and therefore we can find no such difference for this industry compared to the Apparel industry.

Table 5: Industrial comparison

Goodwill impairment, time lag	Coef.	Std. Err.	z	P> z
Industry 2	-38149,88	18546,34	-2,06	0,04
Industry 3	-37504,61	20164,57	-1,86	0,063
Industry 4	-40775,71	20579,61	-1,98	0,048



5. Analysis

From the results of our test we can see that the model we formulated was not suitable in this matter. The model we have used has changes in market capitalization as the explaining variable for goodwill impairment. Even though previous research indicate that goodwill impairments are a reflection of changes in market capitalization this cannot be supported by this study and the model used in it.

When testing without the time lag the model generates a higher p-value than when testing with time lag. This means that the model to some extent better explains the time lag of goodwill impairment than it does the relationship between goodwill impairment and market capitalization during the same year. This indicates that we may be on the right track with our hypothesis of an existing time lag but since the p-value is not below 0.05 we cannot statistically prove that the time lag exists.

We find these results rather confusing since they are not in line with our predictions or the predictions of prior research at all. In the study by Amiraslani, Iatridis and Pope (2013) the authors found that goodwill impairments can be benchmarked against market capitalization, indicating a time lag between the two, but this correlation cannot be supported by our study. The predicted time lag of three to four years, found in Hayn's and Hughes' study in 2006, cannot be supported by this study either. However, in Hayn's and Hughes' study they found that the time lag also could be up to ten years and this finding could possibly be supported by our study. Even though we could not statistically show a time lag of three years it does not have to exclude the possibility of a time lag of ten years instead. However, to see if this speculation may be accurate it requires the study to be performed once again, but in a few years instead.

The fact that the model seems to weakly explain what we predicted, both when testing with and without time lag, is concerning because it indicates that the firms in our sample treat goodwill impairments in an incorrect way. There are a few different possible explanations for why the results are so far away from what we initially forecasted. First of all, the model we have used may be inappropriate for its purpose and not properly



formulated to explain the circumstances. As the model is formulated now we have only used one explaining variable for goodwill impairments, but this may not be correct. There is a possibility that there are more explaining variables for goodwill impairment. If those variables also were identified and included in the model it may generate a more statistically significant result.

One possible explanation could also be that the laws and regulations are not followed or implemented the way they are meant to by firms. This could be due to that the regulatory enforcements in Sweden are rather low. In the study made by the Cass Business School of London, the authors examined that there are different treatment of goodwill impairment among European countries. They also found that goodwill impairment tend to be less correctly done for firms that operate in a business climate with low regulatory enforcements. When categorizing countries into different clusters depending on the level of regulatory enforcements in that country, Sweden ended up in cluster two (Amiraslani, Iatridis and Pope, 2013). This means that Sweden have relatively low regulatory enforcements compared to other European countries, which leads to less correctness when treating goodwill impairments.

As stated earlier, the regulations of IFRS 3 and IAS 36 leave room for manager's subjective judgment regarding goodwill impairment (Hayn & Hughes, 2006). The regulations are vaguely specified on some areas, which lead to different opinions on how the law should be interpreted among managers. This causes inconsistency in financial statements since personal agendas and firm-specific preferences are likely to be reflected in the decision-making process of how the goodwill is treated. This effect of the new regulations is undesired since investors and other stakeholders cannot trust that the information left in financial statements is accurate, which limits its reliability. Since an impairment of goodwill should be reported as a loss in the income statement, it has a direct negative effect on annual reports. This effect is likely to be bigger with new regulations since impairments tend to be bigger when they occur than what amortization was (AbuGhazaleh, Al-Hares & Haddad, 2012). A loss in the income statement can be devastating for a firm that is performing badly but it can also be positive from a tax-point-of-view if a firm makes a profit, since a lower result will lower



tax payments. Depending on what situation the firm is currently in, managers has, because of the subjectivity of the new regulations, the possibility to interpret the laws in a way that is most favorable for the firm at the moment. In bad times managers have incentives to interpret the regulations in a way that does not require an impairment while, in good times, they have incentives to interpret the regulations in a way that calls for impairment (Gauffin & Thörnström, 2010). The high likelihood for subjective interpretation causing inconsistency and incentives to impair goodwill only when the timing is right can be one explaining factor for why our model is weak. The firms may not be following the regulations as they as supposed to, hence not making goodwill impairment at the time they should or not even making the impairment at all. Gauffin and Thörnström also present another possible explanation for why impairments have not been done correctly in Sweden. They state that the delay can be explained by low regulatory enforcements, and that an increase in impairments can be expected later on as firms from now on have to realize that impairments are necessary, which gives support to the finding of Amiraslani, Iatridis and Pope's article. The article also state that the incorrectness in the treatment of goodwill have been done during this recession simply because firms have not had the tools and ability to handle the new regulations accurately. This, in combination with vaguely specified regulations, has caused inconsistency in the implementation.

Since management has incentives not to impair goodwill in bad times, this may be one explaining factor for why we cannot see an increase in impairment connected to the past recession and why we cannot see a time lag. This may therefore also explain why our model generates the result it does. However, perhaps firms should not be so reluctant to impairing in bad times. The already occurred fall in stock price, causing the impairment in the first place cannot be taken away, and there is little reason to believe that if making the impairment, stock prices will fall even further and hurt the firm even more. This has been found in a study from 2009 by PricewaterhouseCoopers, which examined the effect the goodwill impairment had on stock price for a sample of American firms. They could see that for firms, which had correctly impaired their goodwill, the stock prices did not continue to fall to a larger extent than other firms. This finding could possibly make managers have fewer incentives not to impair their goodwill impairment in bad times.



The fact that our model did not indicate a time lag, which is predicted by previous research (Hayn & Hughes, 2006) and by us, could possibly be explained by that firms are still recovering from the recession. Even though the toughest period of the recession is expected to be over there are still, as mentioned earlier, some indications on that we have not completely gotten out of it yet. Because of manager incentives not to impair in bad times this could mean that the goodwill impairment caused by the recession have not been made yet. Instead, impairments can possibly be expected when we have gotten even further out from the recession, and when economic times are truly looking more positive for firms again.

One additionally explanation, for why our model does not show a time lag could also be because researchers who have projected the time lag may have been wrong about for how long the impairment could be delayed. The predictions of three to four years may not be accurate when the impairment is caused by a recession that is tardy. In the study made by Hayn and Hughes in 2006 where indications a time lag of goodwill impairments was first found they stated that it was likely for the lag be between three to four years but the impairments could be delayed by as much as ten years too. Because of this finding we cannot completely rule out the hypothesis of an existing time lag of goodwill impairments. The time lag may just be much longer than initially predicted, which would mean that the impairments caused by the recession just have not been made yet. To fully test for a time lag and see if it may be much larger than assumed in this study the test must be performed again but in a few years preferably ten years after the recession is over.

When analyzing research question number two, we do this based on the result we received from Stata when comparing the industries on how much they impair their goodwill, including a time lag. Our tests show that we can see a difference in how goodwill impairments have been made with a time lag among the industries. Using Apparels as a benchmark we could statistically see that Materials and Biotech and Pharma impaired their goodwill less than Apparels, indicating that a time lag is less obvious for these two industries than what it for the Apparels industry. As for the



Telecom industry, we could statistically see no such correlation, which means, we cannot make any statements regarding if the Telecom industry have made more or less impairments than Apparels or if a time lag is more obvious or not.

One possible reason for why goodwill impairments with a time lag may have been conducted to a larger extent for some industries and not for others could be that our predictions of an existing time lag of three to four years may be incorrect. The time lag may in fact be of a different length than three to four years. Hayn's and Hughes' study in 2006 found indications of that the time lag also could be up to ten years long, or the time lag may not even exist at all. If the time lag exist, but of a different length the difference in goodwill impairment between the industries could be due to that the impairment already have been made, or that it will be made in some time.

In 2008, market capitalization for all of the industries we have examined went down. As mentioned earlier, this should be reflected in impairments of goodwill, either right away if correctly following the law or with a time lag, that this study should capture, if following the predictions of prior studies. However, with this knowledge we find no pattern or correlation for this in our study, and the fact that the impairments are made with such variety it suggest that the regulations are not specific enough for the treatment of goodwill to be consistently made among firms, and therefore, the firms may have performed impairments when they find it suitable. If more clear-cut regulations had existed of how impairment should be treated, it would probably result in less difference among the firms when it comes to impairment of goodwill, which would be desirable for making the financial statements more reliable.

Explanations for why only the Materials and the Biotech and Pharma industry had statistical significance in our tests, can be many and of varying kind. Industry-specific knowledge required for properly analyzing this is something we do not fully possess since this has not been the focus of our study. Therefore, we can only speculate in what the differences could be caused by. First of all, the above mention reasons could be explaining factors for why significance could be found by the test for the Materials and Biotech and Pharma industry. As for the Biotech and Pharma industry, the reasons for



why the tests shows significant lower impairments made with a time lag could be because they made very large impairments in 2008, suggesting that they made their impairment when the real asset loss was faced, which is in line with what the law states. This could mean that their impairments already have been made, resulting in lower impairments in 2011. Impairing their goodwill in 2008 means that they presumably have followed the law correctly. This could be related to that they have relatively large amounts of goodwill and therefore it may be of extra concern to them to make the impairments accurately. It could possibly be of extra importance to them because it is likely that much more attention is drawn to the goodwill treatment in financial statements when goodwill represents a large part of total assets.

For the Materials industry we cannot see that larger impairments have recently been made, and that the significant lower impairments in 2011 can therefore not be caused by this. Instead, it could possibly be explained by that they have relatively low amounts of goodwill to total assets among the industries and therefore are expected to make lower impairments overall, since goodwill due to this have low focus in their financial statements. It could also be explained by that managers may have incentives not to impair goodwill properly in accordance with regulations. The Materials industry is, as mentioned earlier, expected to be hit extra hard in a recession since they are highly dependent on export. If the firms were performing very badly during the recession managers may therefore have taken advantage of subjective determination that the law allows for and consciously not impaired their goodwill enough, simply because the firm would suffer tremendously from an even worse result.



6. Conclusion

Market circumstances change rather drastically in 2008 when the global economic recession hit the Swedish market. This was reflected by a decrease in market capitalization in all of the examined industries of this study. Changes in market circumstances, such as a recession, and decreasing market capitalization are both factors that should provoke goodwill impairments for practically all firms according to the regulations IFRS 3 and IAS 36 controlling this area. However, the expected increase in goodwill impairments overall that the recession was projected to cause, could not be seen. This is concerning, because since 2005 a significant increase in goodwill can be seen for Swedish firms, which indicates that too little impairments have been made (Marton, 2011). When comparing impairments of 2008 for Swedish and American firms there is a huge difference, American firms made impairments of 30 percent of total amount of goodwill while Swedish firms only made impairments of as little as 1,5 percent. Prior research has sought for explanations for why this, and found indications on that a time lag for impairments may exist of three to four years. This study therefore, examined if this time lag can be seen for Swedish firms as well and if differences may exist between different industries.

We do this by using a model where changes in market capitalization are the explaining variable for goodwill impairments. As stated, we could statistically not find a significant time lag for our sample. This result was analyzed further and we have concluded that possible explanations for why we could not find a time lag, as we predicted, are; the regulations are not implemented correctly, the regulatory enforcements are too weak, the regulations are vaguely specified and causes inconsistency, managers have incentives not to impair in bad times, the time lag may be of a different length than predicted and of course, or our model and method of testing could be inappropriate, which could be due to that more variables should be included in it.

As for the difference between industries, our tests could show some differences but only with statistical significance for that industry two and four impaired their goodwill less in 2011 than the Apparel industry. However, it is hard to make any good conclusions



regarding this. There are many firm and industry-specific characteristics that could result in these differences and therefore a much more deeper-going examination of the industry is needed in order to explain this. With the knowledge we have at the moment, we can only make highly generalized conclusions regarding this. We speculate that the difference arise from the following; vaguely specified regulations causing differences in the treatment of goodwill among firms, firm-specific agendas and preferences resulting in subjective determination of impairments, managers having incentives not to impair correctly, and the length of the time lag not being applicable for the specific industry. Specifically for the Biotech and Pharma industry, we believe that our test result could be connected to the industry making large impairments in 2008, which indicates that the expected impairments of 2011 probably already have been made. Specifically for the Materials industry, we believe that the test showed significance of lower impairments in 2011 mainly due to that the industry is presumed to make lower impairments over all since their amounts of goodwill is relatively small compared to total assets.

Even though our results did not indicate a time lag, we cannot exclude this possibility yet. In Hayn's and Hughes' study (2006) there are indications for a time lag of a longer period of time than three to four years. To see if these indications are more accurate the very same test can be performed again in a few years to see if more impairments, initially caused by the recession, have been made then. As time goes by firms will most definitely learn how to correctly implement the regulations, which is why we can expect more impairments to be made along the years (Marton 2011). This has made us believe, that a longer time lag is the most reasonable conclusion from our results. It partly supports our initial hypothesis of a time lag, indicating that we may be one the right track with this research, but a time lag of a different length. Only the future can establish the accurate length of this time lag and therefore we have to leave this determination for future studies.

6.1 Suggestions for continued research

Since our initial hypothesis could not be supported by this study this calls for further research within this field. Since we have found indications for a time lag longer than



three to four year it would be interesting to see if this can be statistically established. The very same test can be performed again in a couple of years to see if we at that time can see a time lag. Further, the model we have used can be extended to include more explaining variables for goodwill impairments than just market capitalization. The model, as it is now, generated a poor result and could possibly be improved if including more variables. To fully understand why our results are the way they are we suggest further research and a more deep-going analysis regarding the reasons for why the implementation of IFRS 3 and IAS 36 is difficult and inconsistently made among firms.

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