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Accounting Treatment of Goodwill under IFRS in the EU:

The impact of enforcement

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Preface

We would like to thank our supervisors, Niuosha Samani and Jan Marton, for their support and constructive criticism throughout the process of writing this thesis. We would also like to thank our opponent groups who took the time to read our thesis and gave useful input to help improve this thesis during the seminars.

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Abstract

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Title: Accounting Treatment of Goodwill under IFRS in the EU: The Impact of Enforcement

Keywords: Goodwill, Enforcement, Accounting, IFRS 3, European Union, Harmonization.

Background and problem: The switch-over from amortization to impairment of goodwill assets led to increased levels of reported goodwill in Sweden. When the US made a similar switch it did not see a similar rise in reported levels of goodwill. The hypothesized reason for this has been the differing severity of enforcement between the countries. This further brought up questions on the success of the harmonization work between the IASB and FASB.

Purpose: The primary purpose of this study is to investigate the relationship between enforcement levels and reported goodwill and, by doing so, aiming to show how well goodwill accounting under IFRS has fulfilled the harmonization goals of the IASB.

Limitations: The study includes a number of factors that provide relevant explanatory powers to our questions, it is not exhaustive. The generalizability of the study is somewhat limited as it only looks into a small area of goodwill accounting, therefore potentially missing other important factors. Lastly the study is marred by a somewhat incomplete dataset.

Methodology: The study uses a quantitative approach to test a number of hypotheses related to enforcement's effects on reported goodwill levels. The empirical material is primarily secondary, gathered from databases. The study's sample includes companies from both the EU and the US. The study primarily uses regression analyses to investigate the relationship between goodwill and enforcement.

Results and conclusions: The results of the statistical tests were inconclusive in relation to the impact of enforcement on reported goodwill levels. It is however, possible to conclude from the results that there exist significant differences in reported goodwill between countries within the EU.

Suggestions for further research: A primary suggestion for future research would likely include applying the notions of enforcement to other aspects of the IFRS regulation. Other more qualitative work, for instance investigating the perceptions of high enforcement levels and their effects on how company's account for goodwill, might also be of interest. Lastly, a more thorough study investigating the differences in goodwill between the US and EU is likely to be of interest.

List of abbreviations

CGU	Cash-Generating Unit The smallest identifiable reporting unit to which goodwill can be accounted
ESMA	European Securities and Markets Authority
FASB	Financial Accounting Standards Board US equivalent to IASB
FI	The Swedish Financial Supervisory Authority (Finansinspektionen)
GAAP	Generally Accepted Accounting Principles
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
OMXS	Stockholm Stock Exchange (Stockholmsbörsen)
SEC	Securities and Exchange Commission
SFAS	Statement of Financial Accounting Standards

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1. Introduction

This introductory section is aimed at problematizing the forthcoming study as well as put it within a broader academic context. This section also introduces the main purpose and question analysed within this study, as well as presenting the study's major limitations. The section ends by summarising the major academic contributions of the study.

1.1 Background

The implementation of IFRS within the EU led to a move away from traditional amortization of goodwill towards an impairment-only approach. This approach was meant to better capture the fair value of the goodwill asset and thereby provide better quality information to investors (Pope and McLeay, 2011). The goal was, at the same time, to work towards a more harmonized world of accounting, where more and more countries would adopt the IFRS framework (Pope and McLeay, 2011). Early evidence suggests that such harmonization indeed exerts a significant impact on the accounting quality and comparability between countries (Bradshaw and Miller, 2008). Despite the harmonization efforts, there continues to exist country specific differences between countries using the same rule-work (Sahut et al., 2011). This becomes very apparent if you look at the different levels of reported goodwill in different EU member countries. A summary by Bradshaw and Miller (2008) shows that reported goodwill levels can vary by as much as almost ten percentage points between countries. Country factors, therefore, appear to have a substantial impact on the reported goodwill variations between countries. In conjunction with the IASB's internal harmonization work, there is also a long standing project between the FASB and IASB to harmonize their differing accounting standards. This harmonization work has been quite successful on the front of goodwill accounting, where they both today employ very similar impairment demands for goodwill in their respective rule work (IAS 36; SFAS 142).

Goodwill reporting under IFRS was expected to provide increased information content to investors, as the new fair value method was seen as less arbitrary than amortizations (Qasim et al., 2013). Goodwill is by nature an asset whose value cannot reliably be verified or estimated, leading to increased levels of potential management discretion (Ramanna and Watts, 2012). These increased levels of discretion in turn also exert pressure on those who need to audit and enforce the IFRS regulation at the different companies (Wines et al., 2007). This offered discretion and potential for opportunism makes it safe to assume that the levels of goodwill are going to vary even between similar companies. Such differences will then appear as a result of factors other than those explicitly stated in the IFRS standards.

Several studies have already looked at such factors that potentially influence the reported goodwill differences. Glaum et al. (2013) looked at data from 2005 to try and identify how well companies managed to comply with the new IFRS rule-work. Industry, strength of the stock market and country enforcement levels proved to be important factors in determining how well a company complied with IFRS. Enforcement is often cited as being a key factor identified in the literature to generating overall positive effects from the IFRS implementation. Christensen et al. (2013) looked at the mandatory IFRS implementation and its capital market effects. Particularly, the authors focused on the liquidity effects as a result of IFRS implementation and major changes to countries' enforcement practices. From their findings, they were able to conclude that simply the adoption of IFRS did not lead to positive capital market effects, highlighting the need for effective enforcement to support the IFRS regulation.

1.2 Problem Discussion

All the countries within the EU apply the same set of accounting standards, namely the IFRS. The US, on the other hand, apply a different set of accounting standards; the US GAAP. These two accounting standards are rather similar to each other in many aspects, including accounting for goodwill. One would, therefore, expect companies to perform write-downs in similar situations as the test in the end boils down to fair value of the goodwill asset. This does, however, not appear to be the case. Gauffin and Thörnsten (2010) reviewed all companies listed on the Swedish stock exchange (OMXS) during 2008 and found that very few companies performed any impairments whatsoever of their goodwill. Those companies who in turn did perform write-downs did so in a fairly limited scale, averaging below two percent of the total goodwill value. KPMG LLP (2008) found in a report over the same year that US firms, on the other hand, performed substantial write-downs with close to 20 % of companies performing write-downs. The question then posed become what the underlying reasons for such a difference are. Gauffin and Thörnsten (2010) hypothesize that one major factor is the large relative differences in enforcement levels between Sweden and the US, with the US having substantially higher enforcement levels than Sweden. Such differences bring into question how well the harmonization process between the EU and US regulators actually has gone. It likewise brings into question if Sweden is a singular example or if these differences have propagated throughout the EU. These are questions that so far remain unanswered. The fact that enforcement levels play an important role in determining the effects of accounting regulations on financial reporting is a well-known fact (see for instance Brown et al., 2013). Evidence from Christensen et al. (2013) hints at the fact that changes in accounting regulations might not provide better quality reporting unless coupled with sufficient levels of enforcement. This suggests that differing enforcement levels are a key factor in trying to understand the differences in reported goodwill values within the EU. Understanding such enforcement differences will in turn be critical in trying to evaluate the overall internal and external harmonization work, conducted by the IASB.

1.3 Purpose

The primary purpose of this study is to investigate the relationship between enforcement levels and reported goodwill and, by doing so, aiming to show how well goodwill accounting under IFRS has fulfilled the harmonization goals of the IASB.

1.4 Research Question

Does enforcement have an impact on companies' reported goodwill value?

1.5 Limitations

Even though this study includes a number of factors that provide relevant explanatory powers to our questions, it is not exhaustive. There exist a number of other factors that are likely to be of relevance to the problem as a whole. In addition to this, there exists a number of caveats of the problem discussed in this that need to be investigated to generate a complete picture. It should, however, be noted that this has not been the intention of this work. It is merely concerned with testing a subset of a much larger problem. This of course limits the generalizability of the study. Another limiting factor arises due to constraints within the dataset used in this study. Even though the study aimed to include as large and broad sample of EU countries as possible, missing values in the dataset has cut down the sample significantly. This, once again, mars the validity and generalizability of the study.

1.6 Contribution

The primary contribution of this study is the investigation of enforcement and its impact on reported goodwill levels. To this extent, the study is designed to yield evidence about this relationship. The study also combines several enforcement factors, thus generating a broader enforcement package than previous studies in the area. This study also builds heavily upon previous studies and can thereby investigate their applicability and usefulness in other contexts than those of their respective studies. Our study also uses a broader sample of EU countries than previous studies, allowing it to capture the effects of countries not usually present in studies of this type.

2. Standard-setters and Enforcers

The aim of this section is to give context to goodwill accounting today. To that end, it will briefly outline the process of goodwill accounting as well as the changes to the IFRS regulation and the aims and goals of the IFRS. This section will also outline how enforcement differs between the EU and US.

2.1 IASB & IFRS

The IASB has existed as a regulatory force in the world of accounting for close to four decades[1]. During this time, it has had an emphasis on working towards harmonizing the different accounting practices around the world. IASB's main tool for such harmonization is the IFRS framework (Pope and McLeay, 2011). This framework should consist of a set of high quality, user friendly and enforceable regulations (see article 2 of the IFRS Foundation Constitution). There is, however, little indication as to how the actual enforcement of these standards should take shape (Pope and McLeay, 2011). There is likewise an ongoing academic discussion whether these standards in fact are of high quality, or rather, if the accounting quality in financial reports have increased under IFRS. Despite numerous studies, a common conclusion has not been established. Brown (2011) summarizes several studies whose aim was to look at the purported accounting quality changes under IFRS. Some argue that accounting quality has improved with the implementation of IFRS (Aussenegg et al., 2008; Barth et al., 2008), while others argue that it has declined (Ahmed et al., 2010; Basu, 1997; Goncharov and Zimmermann 2006; Van Tendeloo and Vanstraelen, 2005). This points to changes in accounting quality being context-specific and thereby varies depending on one's area of interest (Pope and McLeay, 2011).

One of the primary objectives of the IASB is to improve the accounting harmonization, both internally and externally. When we talk about internal harmonization, we mean harmonized accounting amongst countries using the IFRS based rule-work. By external harmonization, we talk about the harmonization work between the IASB and the FASB. This cooperation between the two regulators began with the signing of the Norwalk agreement in 2002. As part of this agreement the two regulators agreed to eliminate differences between their respective accounting regulations. The parties also agreed to work together in developing new accounting standards and practices (IASB, 2014). There are a number of advantages that are often related to such harmonization efforts. Better comparability and higher information quality is often quoted by the IASB as key advantages within its standards (Pope and McLeay, 2011). When the EU decided to implement the IFRS framework in 2005, the potential harmonization benefits were also emphasized. A statement from the EU, quoted by Brown (2011), also points to several harmonization advantages by adopting the IFRS framework. Advantages quoted pertain to eased cross-border trading, increased comparability and increased market efficiency. The chairman of the IASB has also been quoted as saying that IFRS implementation will lower companies' risk levels and foster investments within countries that have adopted the IFRS standards (Pope and McLeay, 2011).

[1] Before 2001, known as the International Accounting Standards Committee (IASC)

Looking at the conceptual framework of the IFRS framework reveals additional insight towards which the framework is directed, namely capital market participants. It is for these actors that the IFRS should provide with information relevant for their decision-making (Pope and McLeay, 2011). Questions have, however, been raised if the information provided by IFRS reports is more relevant than in those reports prepared under the respective countries' national GAAP. Looking at the comparability between companies in different countries reveal that cross-country comparisons may have become easier (Cascino and Gassen, 2010; Jones and Finley 2010). This said, there still exists national accounting patterns which, in turn, may lower the comparability between firms in different countries (Kvaal and Nobes, 2010). There is also evidence that the IFRS implementation has had a positive impact on the information asymmetry between countries, which can be seen as an indication of increased comparability (Cascino and Gassen, 2010). Looking at other accounting qualities neither provides a clear picture of the IFRS's relevance, nor its usefulness towards the users. One such quality that is commonly looked at is value relevance. Value relevance refers to the strength of the relationship between presented accounting numbers and the market data. One study employing this measure is Devalle et al. (2010). They found that the IFRS provided a better explanation of stock prices in relation to reported earnings in certain countries, whereas at the same time, it had the opposite effect in other countries. Another value relevance study by Goodwin et al. (2008) of the Australian transition to the IFRS based rule-work found that earnings under the IFRS did not carry more value relevance than under the old Australian national GAAP.

2.2 Goodwill Accounting under IFRS

With the introduction of IFRS in the EU in 2005, a lot of changes were made to the accounting practices in contrast to the different local GAAPs. Goodwill was one area which was heavily changed, under IFRS 3 – Business Combinations. Goodwill is accounted for during an acquisition of a company and its amount lies in the difference in what was paid in the acquisition and the fair value of all identifiable assets in the acquired company (IFRS 3).

Another major change in accounting of goodwill occurred with the implementation of IAS 36 – Impairment of assets. Prior to IAS 36's enactment, companies were only required to make annual amortizations. But with the implementation of IAS 36, companies are now required to annually make an impairment test of their goodwill. "If the carrying amount exceeds the recoverable amount, the company must recognize an impairment loss" (IAS 36, Para 90). This change is identical to the one made by the FASB (the US's equivalent to the IASB), where they switched from amortization of goodwill to impairment of goodwill in 2001 under the standard SFAS 142[2]. However, there are differences between the standards, where one major difference is exactly how the impairment process is designed (Jerman and Manzin, 2008). This caveat does however, not change the overall premise, that both standards utilize a very similar impairment only approach.

[2] Recently reformed into Statement no. 142

The logic behind the change from amortization to impairment of goodwill was the fact that straight-line amortization over a set of years did not give the user of the financial reports any valuable information (Ravlic, 2003 cited by Wines et al., 2007). According to the IASB, the reason for this change was to improve the accounting quality. However, it is not entirely clear whether the IASB's goal of improved accounting quality has been fulfilled. A study conducted by Wines et al. (2007) looked at the implications the implementation of IFRS would have on goodwill accounting in Australia, and presented arguments for and potential difficulties with the new goodwill standards. Prior to the change, companies would amortize a fixed amount of the goodwill depending on the estimated useful life. This was not seen as beneficial information to the financial statement user because it did not give any valuable information. The new standard, with impairment of goodwill, allows goodwill to be written down when it is necessary in accordance with different situations rather than being written down automatically annually without any basis. Another problem with the previous standard was the estimation of the useful life of goodwill; the longer the estimated useful life, the less reliable the goodwill estimates becomes. The change will, therefore, reflect the real asset value in a better way rather than just making annual write-downs without any basis. This will hence increase the usefulness to the user of the financial statement and enhance decision-making.

Potential issues were also identified by Wines et al. (2007), where it is said that the new standards leads to increased subjectivity, uncertainty and ambiguity in the financial statements. Subjectivity lies in the cash-generating unit (CGU) identification, since estimations need to be made regarding the fair value, recoverable amount and the value in use. There is also ambiguity due to the non-existence of active markets for the CGU in many cases. This will therefore allow the possibility for creative accounting where the companies, for instance, can choose whether to impair or not in order to show improved economic results. Similar results were found by Qasim et al. (2013), where their study of the switch from UK GAAP to IFRS showed increased possibility for opportunistic behaviour on part of companies' management.

A number of studies have been performed in order to test whether the accounting quality has been improved since the change in 2005 (see for instance Van Hulzen et al., 2011; Wiese, 2005). Van Hulzen et al. (2011) explain that, prior to their study, there was no clear evidence that the change from amortization to impairment would improve the accounting quality, as the IASB had argued as the reason for the change. Therefore, they chose to study this using two accounting quality characteristics: timeliness and relevance. The timeliness test showed an increase in timeliness in impairment than it did in amortization, which implies an increased accounting quality in this manner. But there was no increase in relevance to the investors in impairment in comparison to amortization, which indicates that the IASB's purpose of the change was not entirely fulfilled. These results are similar to what Olante (2013) found in the US, where she found an increase in timeliness as a result of the implementation of SFAS 142. Another study by Lapointe et al. (2009), which also looks at timeliness and relevance, was conducted in Canada after the switch from amortization to impairment. The study showed that

the user of the financial statement saw the impairment of goodwill as more reliable and helped them assess the value of the company, which hence meant that relevance was increased.

2.3 Accounting Enforcement

The EU's supervisory organ is the European Securities and Market Authorities (ESMA). ESMA's mission is to work for the protection of investors on European markets. As part of this mission, ESMA has a supervisory role for certain aspects of the European law that covers companies that operate on a pan-European basis. In addition to this, ESMA also works to generate increased cooperation between different national supervisory bodies within the EU. The enforcement of accounting regulations within the EU is managed on a national level, as opposed to on the EU level. This means that the enforcement practices and supervisory structure will vary quite substantially within the EU (ESMA, 2014).

Berger (2010) has looked at some of the different practices of European countries, of which some of the important factors will be outlined below. A first aspect to consider is the organization of the supervisory bodies. Most European countries have placed it upon the securities agency to enforce the regulations. Others, notably the UK and Ireland, have chosen to form privately held bodies responsible for the countries' enforcement efforts. Countries, such as Sweden and Germany, have chosen to create a system which incorporates both a private and a public enforcement body. National enforcement bodies also differ in their mandate. The enforcers in, for instance, Denmark and France have the possibility to discuss difficult accounting questions with preparers before the financial statements have been published. Enforcers in Germany also have the responsibility of ensuring that a company's IPO (Initial Public Offering) follow all the rules stated. Enforcers also have statutory access to different types of documents (such as budgets and protocols) in different countries. The examination from enforcers will also vary between the countries, with some investigating all listed companies every 3-4 years while other enforcers might take up to 6-7 years. The timeframe in which errors have to be identified also varies from country to country, with as low as six months up to an infinite timeframe. All of these factors, and more, causes the accounting enforcement within the EU to be quite varied and gives rise to a substantial enforcement arbitrage between European countries (Berger, 2010).

The US also has a similar supervisory organ as the EU, with the aim if ensuring that the investors in the US markets are protected. This organization is the Securities and Exchange Commission (SEC). They have many different divisions, where their Division of Enforcement may be seen as the most interesting for this study. The SEC's main purpose is to make sure that the accounting and market rules and regulations are enforced, but this particular division's objective is to assist in identifying where investigations need to be made, i.e. where the laws may have been violated. After careful investigations, the evidence is reviewed by the SEC and a decision is made on whether the matter should be brought up in federal court, but it is more common that a settlement is reached rather than going to trial. The SEC have listed a few examples of what may trigger an investigation: "misrepresentation or omission of important information about securities; manipulating the market prices of securities; stealing customers' funds or securities; violating broker-dealers' responsibility to treat customers fairly; insider trading; and selling unregistered securities" (SEC, 2014).

3. Theoretical Framework

This section will include theories from other scientific articles, starting with the IFRS implication. The next part will discuss the role of enforcement and finally supplementary factors will be presented. The study's hypotheses will also be presented in this section.

3.1 Implications of the IFRS Implementation

Hamberg et al. (2011) studied the goodwill levels in Swedish firms with a focus on the reported goodwill levels after the switch from amortization to impairment. The authors studied the switch-over phase from Swedish GAAP to IFRS and sought to look at the difference in goodwill level before and after the implementation of IFRS 3. The study encompassed all companies listed on the Swedish OMXS between 2001 and 2007. The study found that the goodwill level increased substantially in the observed firms and determined that the underlying reasons for this increase lies partially in the abolishment of the amortization of goodwill and partially in increased acquisitions levels. The authors did not find any indications that IFRS 3 had led to greater impairments at the companies.

The implementation of IFRS 3 within the EU introduced a lot of subjectivity in the assessment of impairment, which could result in high goodwill levels. This due to the fact that companies now have the possibility to not make any impairments at all. This is what Gauffin and Nilsson (2011) investigate in their study. While looking at all the acquisitions made by companies listed on the Swedish OMXS from 2005-2010, the authors found 89 acquisitions made with a total value of around 79 billion SEK, from which around 56% was attributed to goodwill rather than other material or immaterial assets. The study also found that around one in seven of the acquisitions did not report any increases in immaterial assets as a result of the acquisition but still made attributions to goodwill. The study also identifies a trend wherein goodwill, as percentage of the total acquisition price, increases in periods of high acquisition intensity. In other words, years where there are many acquisitions lead to a higher percentage of goodwill attributions.

Another review by Gauffin and Thörnsten (2010) also examined the overall levels of goodwill within Swedish companies listed on the OMXS. The investigation took place during 2008 and included 259 companies that reported goodwill posts equal to 613 billion SEK. The goodwill amounted to around 30% of their overall equity levels over the period. Goodwill therefore accounts for a rather significant part of the overall book value in Swedish companies. The authors also looked at the levels of impairment for the same period. 37 companies performed write downs during the period, which amounted to a value of 1.5% of the overall goodwill value. This low level of impairment would then be consistent with the findings of Hamberg et al. (2011). The authors noted this of particular interest as a major recession that held the world in its grasp at the time. Looking internationally it also looks quite different, within for instance the US, where 17 % of listed companies performed write downs that averaged 30 % of the total goodwill value. The authors attribute this major difference partly to the fact that the crisis has had a greater impact in the US, but also to higher pressure on companies from the American SEC as opposed to the Swedish counterpart, FI (Finansinspektionen). Similar differences in accounting treatment have been identified within the EU. The results by

Bradshaw and Miller (2008) show that accounted goodwill can differ by as much as ten percentage points between European countries. These results show that the country where a company is domiciled is likely to play an important role in its treatment of reported goodwill. Looking at these articles shows a clear difference in goodwill accounting between Sweden and the US. This raises the question to whether this difference is apparent between countries within the EU, since all the EU countries apply the same set of accounting standards. Our initial hypothesis will therefore be the following:

H1 = There is a difference in companies' accounting for goodwill between countries in the EU.

3.2 Enforcement

A lot of research has looked into enforcement and its effect on accounting and the IFRS adoption. As part of such research, there has been a vast development in the amount of different ways that enforcement and its effects can be looked at. Some authors have focused on accounting in relation to its institutional setting, looking at countries' legal origins and legal setting. By looking at these institutional settings, researchers have aimed to capture the effects of different levels of investor protection, corruption and so forth (La Porta et al., 1998). Others have looked at the effects of securities law on the stock market and its effects on the market's actors. La Porta et al. (2006) looked at these interactions and pointed towards the securities laws being imperative to dealing with management agency problems related to financial reporting. The authors also drew attention to the need for legal reforms to support financial developments. The judicial systems present in different countries are often seen as key to understanding the impact of finance and financial accounting. Different legal origins are seen as being of different quality, where some are seen as offering better protection for investors than others. At the same time, countries complement their laws and legal origins with different enforcement practices, giving each country a unique "legal quality". The authors do, however, point out that good enforcement cannot substitute good quality laws.

Despite the fact that the IFRS is a set of international standards, there still exist national differences in how accounting is performed (see for instance Kvaal and Nobes, 2010). Other factors, therefore, need be considered in order to fully grasp how goodwill accounting is affected by the IFRS implementation. A specific country's overall enforcement levels can therefore provide a fruitful avenue to explore in order to investigate the differences between differing levels of reported goodwill. Especially as each EU nation has its own set of rules and operations, leading to over 20 different European enforcement systems (ESMA, 2014). Given these clear national enforcement differences, we expect enforcement levels to provide a good level of explanatory power with regards to the differing goodwill levels. Gauffin and Thörnsten (2010) hypothesize that the difference in goodwill levels between Sweden and the US lies in the enforcement levels. The US, who are said to have a high enforcement level, showed lower goodwill levels than Sweden, who are supposedly said to have a lower enforcement level than the US. This raises the question to whether goodwill levels are lower in countries with higher enforcement levels, and vice versa.

We therefore propose the following hypothesis:

H2 = There is a negative correlation between goodwill level and enforcement levels in the different countries in the EU.

Enforcement can be explored in various ways. Christensen et al. (2013) have looked at the impact that the implementation of IFRS has had on the liquidity in the companies in countries where IFRS is used. The authors found that, in order to make sure that the new standards were to be complied with, many EU countries made changes to the enforcement of financial reporting together with the adoption of IFRS. However, they also found that only five of the EU member states made a substantial change in enforcement together with the adoption of IFRS. While a few countries made substantial enforcement changes a few years after the adoption of IFRS, other countries did not make any substantial changes in their enforcement at all. Overall, their results showed a clear connection between enforcement changes and compliance with IFRS.

Previous research has also identified a company's auditing process as playing a pivotal role in ensuring and enforcing compliance with accounting regulations. It is a way of removing the agency problem as well as ensuring that the financial statement gives a true and fair view of the company's performance. Companies being audited by a Big 4 auditor (E&Y, KPMG, PwC or Deloitte) have been shown to maintain an overall higher level of accounting quality (Glaum, 2013). These effects are attributed to that these Big 4 auditors possess the knowledge and training needed to effectively audit firms, something which smaller firms might not have the resources to invest in. Larger firms are likewise also seen as having more incentives to protect their reputation by providing high quality audit work (Glaum, 2013). Lack of expertise on the side of an auditor can also prevent companies from successfully adopting the IFRS framework (Pope and McLeay, 2011). Auditors will, at the same time, have an even greater impact on the financial reports with the introduction of IFRS. This is especially true in the area of goodwill accounting where auditors are not going to be able to use verifiable values in their audit work, but instead will be forced to rely on their professional judgements to a greater extent. This offered subjectivity of goodwill accounting will increase the pressure on auditors in ensuring compliance from IFRS companies (Wines et al., 2007).

3.3 Supplementary factors

In addition to the aforementioned enforcement factors, there exist a number of other factors identified in the literature as being important aspects of goodwill accounting. The industry in which a company operates might affect its levels of reported goodwill. Comparability is one of the cornerstones of IFRS, with one of its main purposes being to improve comparability between companies and industries (IFRS Conceptual Framework). This said, there still exists a level of uncertainty with the report users as to what interpretation of comparability actually is. A study conducted by Cole et al. (2012) among a group of 426 users found that a majority of users defined comparability as uniformity among companies (i.e. using the same accounting treatment). Around 41 % of the surveyed users also believed that IFRS reports were in fact not comparable with each other. An additional 20 % also perceived the IFRS reports as only being comparable within the same industry.

The authors here point towards the importance of preparers in generating comparable reports, noting for instance how preparers' differing incentives affect the final results. In addition to this perceived compatibility issues there also exists documented actual accounting differences. Compliance and disclosures under IFRS have been shown to vary between different industries, with companies within the financial sector showing below average compliance (Glaum, 2013). Different industries have also been shown to be differently affected by goodwill impairments, where some industries are more prone to perform write-downs (KPMG LLP, 2010).

Another factor that has been investigated, when it comes to reported goodwill levels, is that companies' managers might be affected by opportunistic behaviour. Agency theory expects such behaviour to increase as managers feel incentivized to act opportunistically. Incentives often seen as playing an important role here are contractual obligations (such as debt obligations); managers worried about spoiling their reputation by performing badly and the demand on a company to maintain a level of economic return (Beatty and Weber, 2006). These notions have been tested in an American setting by Ramanna and Watts (2012) and found to be consistent with managers avoiding to impair their company's goodwill assets, thereby retaining its value over a longer period. This can in turn be linked with the unverifiability of goodwill's value providing management with the tools to act opportunistically. (Ramanna, 2008).

Something else to take into consideration is a company's overall economic performance. Economic performance is a broad term that can be defined in many different ways. One such way is the look at the market capitalization of a company. Market capitalization is calculated as the number of outstanding shares multiplied by its current market price, representing the total value of a company's issued shares (Financial Times, 2014). Churyk (2005) looked closer at the connection between market valuation and goodwill impairments. In his study, he analysed the effects of the guidelines presented in the exposure draft to FASB's SFAS 142 and how it interacted with a company's stock price. Among his findings, he showed two primary cases for when companies performed goodwill write-downs, in accordance with the guidelines of the standards. These cases were either when a company had seen a sharp decline in its stock prices, or when the book value of equity surpassed its market value. This, in other words, points towards goodwill values dropping, as a result of impairments, when the market loses trust in a company's ability to fulfil its economic goals.

4. Method

This section will discuss the methodology used to conduct this study. It will start by introducing the method choice and the approach to the research. It will then present the data collection and how the data was processed. Finally there will be a presentation of all the variables included in this study.

4.1 Choice of method and research approach

Our study will take on a positivistic approach and build on quantitative data and methodology. We will thus use a deductive approach, which means that we will develop a theoretical framework which will be the ground for our hypotheses and will be tested against our empirical material in order to see whether there is any association/causality (Collis and Hussey, 2009). The data will be gathered from the database DataStream. Our sample will, initially, include all listed companies within the EU (see 4.2.1 below) and the US. The primary purpose of including the US within the sample is to generate a neutral point of comparison, which will be useful in the statistical testing process. The sample will cover the years 2006-2012, in order to exclude any transitional effects from year 2005, which could generate increased noise in our study. We will then, with the help of a set of proxies (see 4.4 and 4.5 below), gather data on the variables that we want to investigate. This data will form the foundation for a statistical analysis that will help us conclude if there is any connection between goodwill levels and the different variables.

4.2 Collection of data

Secondary data has been the primary source of data for this study. The data for this study was gathered from the database Thomson Reuters DataStream, which is one of the world's largest financial statistical databases. This ensures that the data can be considered as reliable. We started by creating a list of all the companies relevant for the study. This meant companies in all the countries in the EU (excluding those mentioned below in 4.2.1) and the US (see Appendix 1 for complete list of countries and stock exchanges). We specifically looked at the stock exchanges in each country, and excluded those less relevant stock exchanges in countries that had more than one. We also made sure to only include the primary listing for each company, to avoid getting several values for each company. These choices meant that our sample was composed of 5811 companies. Data was collected for every fiscal year between 2006 and 2012, and all values were extracted in the same currency, Euro (See Appendix 2 for complete list of codes and variables used for our data collection). In addition to the data gathered from DataStream, supplementary data was also gathered from two other sources. Firstly, Christensen (2013) was used as a source for potential changes in a country's accounting enforcement. Secondly, additional data pertaining to each country's regulatory quality index was gathered from the World Bank's Governance Indicators Database.

4.2.1 Sample limitations

Our study is primarily concerned with the IFRS implementation within the EU. We have therefore excluded all other countries in the world regardless if they follow IFRS or some other accounting regulation. The only exception to this has been the US, as this country forms an important tool for comparisons in our study, especially with regards to accounting

enforcement. Countries outside of the EU also apply the IFRS accounting standards, but some countries may have modified versions (e.g. Australia). By only looking at the EU, we ensure that all the companies in our study apply the same set of standards. In addition to these exclusions, certain EU countries have also been excluded. These are: Bulgaria, Croatia, Cyprus, Latvia, Luxembourg, Malta and Romania. Bulgaria, Croatia and Romania have been excluded since they were not part of the EU at the inception of our study, and thus were not obligated to follow IFRS for the entirety of the period in question. We have therefore been forced to exclude them, as we have no reliable way of determining whether or not companies in these countries followed the complete IFRS regulations. Including countries with a later IFRS adoption can therefore introduce noise in these tests. The remaining countries were excluded as we were unable to collect the data necessary to our study for companies within these countries.

4.3 Processing of data

We began by extracting all the necessary data available from DataStream for all the listed companies in the countries we have focused on and received a large amount of missing values in the form of codes E100[3] and E4540[4]. These cells were left blank and were treated as missing values in the later statistical analysis. At this stage, much of the data gathered was also converted into variables and proxies suitable to statistical testing; this transformation process will be discussed in detail below. The supplementary data was gathered in the next stage and was manually entered into the data set. This supplementary data was at this point also converted into suitable variables; something which is discussed further in the next section. The complete data set was then converted into panel data which will allow us to better capture the time aspect in our study. It will also allow us to take into consideration that we are observing the same objects (companies) at multiple points in time (Hsiao et al., 2003). The data in our study is not cross sectional in nature, but rather contains observations from the same objects at different points in time. Using panel data will allow us to later perform statistical test more suited to this type of data (Hsiao et al., 2003).

4.4 Dependent Variable

The overall interest of this study is to look at the relationship between companies' reported goodwill and different enforcement pressures leveraged on the company. To capture a company's reported goodwill; we have chosen to use the company's reported goodwill divided by its (preferred) equity (GW/E). GW/E was chosen as it also is better able to capture the values effects of changes in goodwill as opposed to measures such as goodwill through total assets (Binacone, 2012). In our case, reported goodwill is equal to the "Goodwill/cost in excess of assets purchased" measure from DataStream. The equity measure used is the "Common Equity" measure presented in DataStream. Defining the variable as a ratio also allows us to eliminate the size effect of a company, as well as manage the fact that we have got different number of observations from different countries. It should also be noted that this variable can also take on almost any value imaginable, both positive and negative, the latter albeit somewhat rarely.

[3] NO WORLDSCOPE DATA FOR THIS CODE.
[4] NO DATA VALUE FOUND.

4.5 Enforcement variables

Our study of the enforcement effects will focus on three key areas in order to encompass the different aspects that make up an enforcement process. The three areas of interest are: overall regulatory quality, auditing and strengthening of enforcement oversight.

To test for overall regulatory quality we will use the World Governance Indicators (WGI) prepared by the World Bank. These indicators encompass several aspects of a country's legal environment and among them there exists a Regulatory Quality (RQ) index. This RQ indicator has the goal of "[...] capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development" (Kaufmann, 2009). For an exhaustive list of each country's regulatory index see Appendix 3. This index is an amalgamation of several sources spanning many different organisations and countries. Areas encompassed within the index include efficiency of banking and finance regulation, severity of trade barriers as well as efficiency of the country's tax system. For an exhaustive list of what is contained within index please refer to the appendices of Kaufmann (2009).

Using this index will allow us to capture the differences in legal rule and legal institutions between countries. The basis for our study has been the RQ index for each country over the period 2006 to 2012. The indexes have been manually collected from the World Bank's Governance Indicators Database and entered into excel so that each observation has been given a RQ index that corresponds to the country in which a company is domiciled (The World Bank, 2013). This has been done as one would assume that a company is more likely to be affected by legal changes in the country where its parent company is registered. The RQ index is constructed in such a manner so that it is normally distributed with a mean of 0. This generates the effect that all observations fall within the interval of -2.5 and +2.5 (Kaufmann, 2009).

Auditing is an additional level of enforcement leveraged upon companies. Glaum et al. (2013) have identified a relationship between company accounting compliance and being audited by a Big 4 auditing firm. Our test will continue this line of reasoning and look at the actual reported accounting number and how they differ between firms being audited by a Big 4 or a smaller firm. In order to do so, we have established a binary variable, where companies are given a 1 for the years they are audited by a Big 4 firm and 0 for all other observations. Firms are being seen as audited by a Big 4 when "Parent Auditor 1" in DataStream report PwC, E&Y, KPMG or Deloitte. As companies are able to switch auditor over time it was important to establish a binary auditing variable for each year in our sample.

Another enforcement factor worth considering is what effects changes to a country's enforcement initiatives might have on reported goodwill. Such enforcement changes have been found as being an important part of the overall enforcement package leveraged on companies (see for instance Christensen et al, 2013 and Glaum et al, 2013). Testing for changes in a country's overall enforcement level can be done in several different ways. Our chosen method builds on data gathered by Christensen et al. (2013). Our study utilizes the same data about enforcement change as that which has been gathered by Christensen et al.

(2013). To that end, we also use the same overall definition of what constitutes major enforcement changes as Christensen et al (2013). Major changes include, but are not limited to, a country implementing tighter controls of annual reports, creating new enforcement agencies or raising the penalties for companies that overstep the regulations. Much of the information that has been included in determining if major changes have occurred is taken from annual reports and surveys from professional accountants and auditors. This data has then been interpreted by Christensen et al. (2013) to determine if a major change has occurred. This of course leads to a level of discretion in the variable, something which should be acknowledged. The data of enforcement change was entered into the data set on a stock market basis, pairing each stock exchange with a change or non-change. This ensured that each observation got data of a potential change. As our dataset only includes primary listings, we saw an opportunity to plot the enforcement changes to being listed on a stock market in a specific country rather than to the country where the company is domiciled. Even though these often overlap, there exist exceptions. By differentiating here, we are able to catch the enforcement effects on the 'most important' stock market(s) for each company, and thus also be able to catch those changes that are likely to be of most interest to a company. The data for enforcement change was then converted into binary variables. Since we are interested in changes and the effects they generate it was important for us to be able to compare the period before and after a change, hence the multitude of variables. The binary variable was coded 0 if a country had not performed and enforcement changes either in conjunction with the implementation of IFRS or in the following years. Countries were coded 1 if such a change had occurred and countries would retain a value of 1 for the remainder of the period after the change occurred.

4.6 Control variables

4.6.1 Economic performance

We will have to control for the effects of company's performance on its reported goodwill levels. To control for such economic effects we have chosen to use the respective companies' market capitalization/book value (MC/E). MC/E represents the total value of a publicly traded company's shares in relation to accounted value of these stocks stake in the company. Using such a measure will allow us to control for the fact that impairments tend to increase as a company's market value decreases (Churyk, 2005). Increased level of impairments will then in turn lower the company's overall goodwill levels. MC/E has been calculated using the "Market Capitalization" divided by the "Common Equity" measures from DataStream. The market capitalization extracted from DataStream represents the value at the final day of trading in each of the year of the sample.

4.6.2 Incentives

In order to control for agency related incentives, we will use the fact that goodwill valuation is made on an unverifiable basis. Agency-theory predicts that opportunistic behaviour increases when more possibilities for such behaviour presents themselves (Ramanna and Watts, 2012). Thus, as the unverifiability in a company's assets increases, one would expect more opportunistic behaviour. To account for this, we will include the unverifiable net assets (UNA) measure in our analysis. UNA represents the proportion of a company's asset, whose fair value cannot be verified on an active market (Ramanna, 2012). UNA can be calculated as:

$$UNA = \left[\left(\frac{Cash + Investments\ and\ Advanves - Debt - Preferred\ Equity}{Assets - Liabilities}\right) * -1\right]$$

* Excluding the $[* -1]$ part of the operation would lead to the calculation of the verifiability of net assets.

As this measure increases, we expect to see an increase in the subjectivity in determining the goodwill value for a company (Ramanna and Watts, 2012). Due to how DataStream is built up, we have not been able to extract all the measures necessary to construct the above mentioned UNA measure. This study will therefore use a UNA that has been slightly modified, where only the short term investments and advances are included. The modified UNA will therefore have the following definition:

$$UNA = \left[\left(\frac{Cash + Short\ Therm\ Investments - Debt - Preferred\ Equity}{Assets - Liabilities}\right) * -1\right]$$

* Excluding the $[* -1]$ part of the operation would lead to the calculation of the verifiability of net assets.

It should here be noted that there are several ways to look at incentives within a company, each with their own unique caveats. See for instance Ramanna (2008), Glaum (2013) and Olante (2013), for a more in-depth look at different ways to look at incentives. Our aim is not to fully encompass all of these incentives related problems, but rather to take a broad view on the issue and control for as much as possible. To that end, we are also limited by what data we have access to. In order to perform a more complete analysis on incentives and agency issues, we would need to generate additional data that lies beyond the scope of this study.

4.6.3 Industry

To account for different levels of reported goodwill within different industries we are quite simply going to control for these effects. We have chosen to use "general industry classification" for this purpose. This is a very broad classification measure, which segregates companies based on very general characteristics. The segregation is done along the following categories: Industrials, Utility, Transportation, Bank/Savings & Loans, Insurance, and Other Financials. Such wide categorisation will allow us to capture the broad and general differences between industries. It would of course be possible to create a more specific variable, such as at a segment level. This might of course have generated more apparent differences between different companies in different segments. Such a segmentation has, however, not been a possibility for us due limitations with how DataStream have decided to

segment the different firms. We have been unable to find a suitable segmentation measure within DataStream that has been able to encompass the markets our study is interested in. There existed a number of industry variables that would have suited our study. However, using any of these variables generated large number of missing values. The variable chosen, therefore, represents the industry segmentation with the lowest rate of missing value.

4.7 Statistical testing

The statistical testing process will entail several steps and use several different tests with the ultimate goal of testing our previously discussed hypotheses. There are several tools available to test a set of hypotheses. These tools can be classified into two broad categories, depending on whether they analyse one or multiple variables. Multivariate analysis allows for analyses of several variables within the same model. This gives multivariate analysis models the ability to infer about the causality between variables and to look closer at how variables interact with each other (Randolph and Myers, 2013). Univariate analysis, on the other hand, is concerned with the variations within a single variable, looking at measures such as the central tendency of observations within the variable (Lewis-Beck et al, 2004). The focus of the statistical tests within this study will be on multivariate analysis as our interest is in the relationship between variables as opposed to the internal structure of each variable. Primarily two types of tests will be used, namely nonparametric variances tests (Kruskal-Wallis and Mann-Whitney U tests) and regression analysis tests (fixed effects and OLS models). The nonparametric tests will be used primarily in conjunction with the first hypothesis of this study. The regression models will be used in conjunction with the second hypothesis and aims to test the explanatory power of our independent variables. These tests will be discussed and explained further in conjunction with their use in the next section. All of our test will use a significance level of 0.05 when determining if the results of the tests are statistically significant or not. The statistical software package Stata will be used for all statistical tests used within this study. The following table summarizes all the different variables that will be used in our statistical models:

Table 4.7.1: Variable list

Variable type	Name	Proxies	Model
Dependent	GW/E	Reported goodwill	Goodwill / Equity
Independent	RQ index	Enforcement	Regulatory Quality Index (WGI)
Independent	Audit	Enforcement	0 = Non-Big 4 Auditor 1 = Big 4 Auditor
Independent	EC	Enforcement	0 = No enforcement change 1 = Enforcement change
Control	UNA	Incentive	[(Cash + Investments - Debt - Equity)/ (Assets - Liabilities) * -1]
Control	MC/E	Economic performance	Market capitalization / Equity
Control	Industry	Industry	1. Industry; 2. Utility; 3. Transportation; 4. Bank/Savings/Loans; 5. Insurance; 6. Other financials

5. Empirical results

This section will include the results from our tests. Initially, there will be some descriptive statistics. The results of the tests used to answer the study's hypotheses will then be presented. These results will form the foundation for the analysis and discussion in the next section.

5.1 Descriptive statistics

The initial sample for this study concerned 5811 companies listed on EU stock exchanges being observed over a period of seven years, totalling 40677 observations. This initial sample does, however, contain a large number of missing values, around 50 %. From this overview, we can also see that the missing values are divided somewhat evenly throughout each country included in the study. Our sample used in the statistical tests is, therefore, significantly smaller than originally intended. Below is a tally of overall missing values as well as a breakdown of the missing values on a country level.

Table 5.1.1: Missing values

Country	Com-panies	Obs	Missing Value	Remain Obs	Missing Value
Austria	37	259	151	108	58%
Belgium	64	448	233	215	52%
Czech Rep	8	56	36	20	64%
Denmark	189	1323	206	1117	16%
Estonia	14	98	18	80	18%
Finland	28	196	118	78	60%
France	396	2772	1482	1290	53%
Germany	1132	7924	6035	1889	76%
Greece	28	196	64	132	33%
Hungary	30	210	117	93	56%
Ireland	15	105	41	64	39%
Italy	129	903	353	550	39%
Lithuania	9	63	25	38	40%
Netherlands	32	224	110	114	49%
Poland	747	5229	3452	1777	66%
Portugal	16	112	54	58	48%
Slovakia	115	805	677	128	84%
Slovenia	57	399	121	278	30%
Spain	68	476	200	276	42%
Sweden	334	2338	964	1374	41%
UK	926	6482	2779	3703	43%
USA	1437	10059	4006	6053	40%
Total	**5811**	**40677**	**21242**	**19435**	**52%**

Here, in Table 5.1.1, we see that the total number of observation that will be used in the statistical tests lies around 19 000. This sample is more than enough for our results to be generalizable. A sample of at least ~365 objects is often seen as the lowest cut-off point for generalizability in most social science studies (Collis and Hussey, 2009).

Below, we present the summary statistics for our dependent variable in Table 5.1.2 and the summary statistics for our control variables in Table 5.1.3.

Table 5.1.2: Summary statistics, dependent variable

	GW/E				
Country	**Mean**	**Median**	**SD**	**Min**	**Max**
Austria	0.18	0.08	0.3	-0.09	1.88
Belgium	0.23	0	0.54	0	4.73
Czech Rep	0.61	0.7	0.53	0	1.76
Denmark	0.06	0	0.44	-3.9	7.33
Estonia	0.12	0	0.27	0	1.42
Finland	0.74	0.27	2.97	-3.06	25.88
France	0.23	0.00[4]	0.81	-6.9	13.22
Germany	0.15	0	0.82	-10.95	12.2
Greece	0.04	0	0.11	0	0.72
Hungary	-0.34	0	4.59	-43.61	4.29
Ireland	1.01	0.09	2.96	-2.62	14.32
Italy	0.6	0.06	8.17	-42.84	181.89
Lithuania	0.13	0.01	0.2	0	0.75
Netherlands	0.17	0.07	0.54	-1.98	2.88
Poland	-0.24	0	13.82	-582.57	3.71
Portugal	0.1	0.09	0.11	0	0.61
Slovakia	0.00[1]	0	0.00[5]	0	0.03
Slovenia	0.3	0	0.09	0	0.8
Spain	-0.3	0.01	8.07	-132.02	7.47
Sweden	0.244	0	1.37	-18.83	28.19
UK	0.28	0	5.15	-199.76	150.21
USA	-0.56	0	47.24	-3597.05	274.04
Total	**-0.07**	**0**	**26.85**	**-3597.1**	**274.04**

*All values have been rounded up to the second decimal

The above table, Table 5.1.2, includes summary statistics for the study's dependent variable divided on a country basis.. We can also see that there exists quite substantial differences in the lowest and highest overall value for GW/E across all observations. This difference could be indicative of extreme values within our sample, something which will be explained at a later stage in this section. One can also see that the mean and median values in the sample appear to be clustered around the zero value, something which also supports the theory that the absolute differences in the Min and Max values might be extreme values.

Table 5.1.3: Summary statistics, control variables

	MC/E					UNA				
Country	**Mean**	**Median**	**SD**	**Min**	**Max**	**Mean**	**Median**	**SD**	**Min**	**Max**
Austria	1.78	1.33	1.82	-0.43	15.08	1.19	1.01	1.29	-1.86	8.96
Belgium	2.39	1.48	6.30	-20.42	75.28	1.24	1.31	3.15	-33.42	13.14
Czech Rep	2.00	1.37	1.82	-0.31	6.63	2.36	1.96	2.29	-0.93	10.63
Denmark	1.71	1.00	14.84	-14.95	478.25	1.02	0.99	14.09	-421.00	195.08
Estonia	0.84	0.63	1.19	0.00	5.69	1.40	1.21	0.72	0.39	5.84
Finland	1.33	1.14	1.98	-5.83	7.36	5.04	1.66	16.91	-7.26	138.38
France	3.51	1.67	28.75	-104.16	893.07	1.33	0.93	9.76	-82.25	331.25
Germany	-2.33	1.43	711.36	-24262.00	14076.00	1.28	0.99	191.70	-6273.00	3151.50
Greece	1.75	1.38	1.45	-0.04	6.84	1.62	1.19	1.27	-0.29	6.33
Hungary	-4.86	1.81	79.86	-633.89	58.96	0.76	1.23	6.61	-50.28	23.44
Ireland	2.91	0.94	9.50	-1.60	72.25	2.09	0.91	4.98	-9.06	23.38
Italy	3.06	1.27	21.64	-3.01	457.33	2.87	1.35	14.48	-8.67	274.14
Lithuania	0.98	0.73	0.96	-0.24	4.57	2.06	1.47	2.57	-1.18	15.84
Netherlands	1.66	0.86	3.09	-3.34	24.24	2.34	1.12	4.54	-7.82	33.14
Poland	-13.11	1.25	569.63	-20441.00	461.50	1.18	1.04	20.88	-719.07	426.00
Portugal	1.44	0.72	2.21	-2.28	10.98	3.72	2.00	12.61	-17.37	90.75
Slovakia	0.53	0.38	0.46	-0.40	1.97	1.47	1.04	2.17	-10.24	13.08
Slovenia	2.95	0.52	34.12	-0.13	546.59	1.55	1.29	1.21	-1.64	8.14
Spain	0.92	1.43	25.78	-347.86	41.21	0.06	1.44	24.99	-363.55	91.30
Sweden	3.22	1.82	7.18	-105.32	83.94	0.82	0.96	20.84	-760.04	36.21
UK	4.20	1.21	94.76	-2077.08	3589.15	4.26	0.85	83.83	-364.63	3046.86
USA	-5.31	1.50	478.81	-32099.33	1370.95	-8.70	1.00	783.64	-60305.86	1699.94
Total	**-1.27**	**1.27**	**384.65**	**-32099.33**	**14076.00**	**-1.23**	**0.99**	**441.90**	**-60305.86**	**3151.50**

**All values have been rounded up to the second decimal

A summary of the study's control variables in table 5.1.3 indicates the same thing as the summary statistics of the dependent variable; that there are extreme values in our sample. This can be seen by looking at the total Min and Max values of both our control variables, MC/E and UNA.

Below, in Table 5.1.4, we will present a correlation matrix of all of our variables. The purpose of this is to see whether any covariations between the different variables exist.

Table 5.1.4: Correlation matrix

	Value	GW/E	MC/E	UNA	EC	Audit	RQ index	Industry
GW/E	Corr.	1.0000						
	Sig.							
MC/E	Corr.	0.6611	1.0000					
	Sig.	**0.0000**						
UNA	Corr.	0.0031	0.4387	1.0000				
	Sig.	0.6725	**0.0000**					
EC	Corr.	0.0088	0.0069	0.0070	1.0000			
	Sig.	0.2181	0.3866	0.3330				
Audit	Corr.	0.0077	0.0039	-0.0055	-0.1444	1.0000		
	Sig.	0.2930	0.6317	0.4562	**0.0000**			
RQ index	Corr.	0.0047	0.0095	0.0029	0.5959	0.0999	1.0000	
	Sig.	0.5148	0.2369	0.6906	**0.0000**	**0.0000**		
Industry	Corr.	-0.0013	0.0008	0.0069	0.0066	0.0473	0.0207	1.0000
	sig.	0.8561	0.9176	0.3416	0.2739	**0.0000**	**0.0006**	

Significance level: **0.05**

The correlation matrix table shows that there are three groups of variables that show large significant correlations. The three groups are: MC/E and GW/E; MC/E and UNA; RQ index and EC. It is worth taking note of these relationships for primarily two reasons. Firstly, such covariation increases the possibility of noise in the statistical analysis. This is especially true in cases where independent variables covary with each other, such as the RQ index and EC correlation. Secondly, the correlations can give a first hint towards what results the future regressions might yield. As we see a positive correlation between the dependent and independent variables, we would expect to see a similarly positive relationship in future regressions.

As noted earlier, there exists a substantial amount of extreme values in three of our variables. As a means to manage the potential risk that these extreme values pose for our results, we have decided to winsorize these three aforementioned variables. Winsorizing lowers the effects of extreme values by replacing the extreme value with the next one, counting inwards (StataCorp, 2009). Doing this operation then helps to eliminate abnormally big changes between observations. Looking at the five extreme end points (not tabled in this report) showed values with large differences in comparison to the mean values. Using this indication, we have chosen to winsorize the extreme values in both tails of the variables. The winsorized level has been set to 2 %, a common level in tests of this nature (StataCorp, 2009). These winsorized values will be used in all of the future statistical tests, but will continue to retain the same notation as before.

5.2 Differences in Reported Goodwill

The first part of the statistical testing process will be to determine if our sample exhibits similar differences to those found by Bradshaw and Miller (2012). Since our second hypothesis is designed to look at differences caused by different enforcement initiatives, it is necessary to first test if any differences actually exist. The first series of statistical tests therefore aims to test the H1 Hypothesis. H1 being:

H1 = There is a difference in companies' accounting for goodwill between countries in the EU.

There exists a number of ways in which one could test for such differences. One simple way is to perform a Kruskal-Wallis test. A Kruskal-Wallis test allows for comparisons between several independent samples. The test shows if there is any one independent sample that differs significantly from the other sample (Corder and Foreman, 2009). Running a Kruskal-Wallis test of our sample with GW/E as the point of comparison and setting each country as an independent sample, generates the results which are presented below in table 5.2.1.

The Kruskal-Wallis is, however, unable to further specify exactly how many differences exist within the sample or between which countries the differences exists. To look closer into this would require the use of a Mann-Whitney U test, which would look at the all the possible different "pairs" of countries and look for significant differences between them. Such a test is, however, not feasible to perform in this case due to the high number (22 countries) of independent samples. Doing a complete Mann-Whitney U test for all possible combination would result in over 200[5] individual tests, far beyond the feasibility and scope of this study. There are, however, some further tests that can be done in order to further bolster the statistical results. One way is to do an additional Kruskal-Wallis test, excluding all US firms. Doing this would eliminate all influence from the US and only measure differences between EU countries. Such a test for our dataset yields the results which are presented in table 5.2.2.

[5] SUM 1+2+3+[...]+21 = 231

Table 5.2.1: Kruskal-Wallis test, EU and US

Country	Obs	Rank Sum
Austria	108	1,27E+06
Belgium	215	2,20E+06
Czech Rep.	20	2,96E+05
Denmark	1117	7,84E+06
Estonia	80	7,02E+05
Finland	78	1,08E+06
France	1290	1,39E+07
Germany	1889	1,82E+07
Greece	132	1,09E+06
Hungary	93	7,57E+05
Ireland	64	7,48E+05
Italy	550	6,69E+06
Lithuania	38	4,05E+05
Netherlands	114	1,30E+06
Poland	1777	1,62E+07
Portugal	58	6,98E+05
Slovakia	128	8,62E+05
Slovenia	278	2,31E+06
Spain	276	2,99E+06
Sweden	1374	1,36E+07
UK	3703	3,59E+07
USA	6053	5,99E+07

chi^2 with ties = 763.127 with 21 d.f.
probabibility = 0.0001

Table 5.2.2: Kruskal-Wallis test, EU

Country	Obs	Rank Sum
Austria	108	8,87E+05
Belgium	215	1,53E+06
Czech Rep.	20	2,06E+05
Denmark	1117	5,41E+06
Estonia	80	4,87E+05
Finland	78	7,53E+05
France	1290	9,63E+06
Germany	1889	1,27E+07
Greece	132	7,56E+05
Hungary	93	5,24E+05
Ireland	64	5,18E+05
Italy	550	4,66E+06
Lithuania	38	2,82E+05
Netherlands	114	9,07E+05
Poland	1777	1,12E+07
Portugal	58	4,87E+05
Slovakia	128	5,96E+05
Slovenia	278	1,60E+06
Spain	276	2,08E+06
Sweden	1374	9,45E+06
UK	3703	2,49E+07

chi^2 with ties = 807.647 with 20 d.f.
probabibility = 0.0001

If we start by looking at Table 5.2.1, the results from this test show that there indeed exists at least one statistically significant difference between the different countries. The reason for this conclusion is that the chi-squared value (763) is significantly higher than the critical value. The critical value represents the cut-off points at which we can reject the null hypothesis given a set significance level (Corder and Foreman, 2009). Stata does not present this critical value, but instead chooses to present the highest level where the result remains significant. In the case of this first test, the results are significant up to the 0.0001 level, comfortably above our set significance level of 0.05.

The results in Table 5.2.2 here continue to show that there still exists at least one country whose GW/E levels differ significantly from at least another one. The result remains significant down to the 0.0001 level, showing a clear difference in GW/E between at least two countries in the dataset. This shows that there exist differences in goodwill levels between at least two EU countries.

The previous Kruskal-Wallis tests have not really shed much light into how widespread the potential differences in reported goodwill are across the EU. To that end, we have devised a special application of the Kruskal-Wallis test that will also allow us to use the Mann-Whitney U test. A Mann-Whitney U test achieves this by looking at how well the observations in both samples cluster together. The more observations from one sample cluster together, the more likely it is that the samples exhibit significant differences (Corder and Foreman, 2009). This test utilizes the fact that the EU countries logically can be divided into smaller groups based on their legal origins, similar to La Porta et al. (1998). Doing this generates several points of comparisons where differences might arise, tightening the span of which samples might differ with each other, allowing us to perform several Kruskal-Wallis tests on the same data. In preparation for this third test, the companies have been divided into five groups. The groupings have been done according to each country's broad legal origins, similar to La Porta et al. (1998). As La Porta et al. (1998) only contain around two thirds of the countries that we are interested; we have been forced to collect our own data on the country's legal origin. This has been done using the CIA World Fact Book and is by no means or intentions a perfect representation. The groupings are as seen in Table 5.2.3, followed by a summary statistics of the groupings in Table 5.2.4 (naming by La Porta et al, 1998):

Table 5.2.3: Legal origin

German civil law	French civil law	Scandinavian civil law	Civil law (unsorted)	English common law
Austria	Belgium	Denmark	Italy	Ireland
Czech Rep	France	Finland	Lithuania	UK
Estonia	Netherlands	Sweden	Poland	USA
Germany	Portugal			
Greece	Spain			
Hungary				
Slovakia				
Slovenia				

Table 5.2.4: Summary statistics – GW/E, by legal origin

Legal origin	Obs	Mean	Median	SD	Min	Max
German civil law	2728	0.11	0	1.09	-43.61	12.2
French civil Law	1953	0.15	0.00[5]	3.11	-132.02	13.22
Scandinavian civil law	2569	0.18	0	1.17	-18.83	28.19
Civil law (unsorted)	2365	-0.04	0	12.62	-582.57	181.89
English common law	9820	-0.24	0	37.23	-3597.05	274.04

All values have been rounded up to the second decimal point

The summary statistics presented in Table 5.2.4 shows that the extreme values in our sample still are likely to generate noise in our tests. We therefore continue to use the winsorized values in these grouped tests as well. One can also note that each group does not contain the same number of countries. This will, however, not present problems for the following statistical tests, since they are concerned with the variance of each group rather than the number of observations (Corder and Foreman, 2009). The first way to utilize this grouping scheme is that it allows for comparisons within each group. This can be done using a Kruskal-Wallis test, by similar design as above. Doing a test this way is somewhat more accurate than doing a test of all EU countries as each group now contains a lower number of observations. Performing a Kruskal-Wallis test within each legal origin group yields the following results (see Appendix 4 for the complete results):

Table 5.2.5: Kruskal-Wallis test, by legal origin

Legal origin	chi^2 with ties	Probability
German civil law	136.510 with 7 d.f.	0.0001
French civil Law	6.906 with 4 d.f.	0.1409
Scandinavian civil law	330.738 with 2 d.f.	0.0001
Civil law (unsorted)	188.271 with 2 d.f.	0.0001
English common law	10.979 with 2 d.f.	0.0041

The results in Table 5.2.5 show that four groups have at least one statistically significant difference at our given significance level of 0.05. There is, however, one group where we cannot with certainty state that the results are statistically significant. This is the French civil law group. Using this method shows us that there are at least four countries within our entire sample of 22 countries that statistically differs from the other samples. Running several Kruskal-Wallis tests on the same dataset has the unfortunate consequence of increasing the risk of conducting type I errors[6]. This can be combated by using the Bonferroni method, which modifies the significance level used in the tests to take into account that several independent tests are performed in a row. This modified significance level is acquired by dividing the chosen significance level by the number of Kruskall-Wallis tests run on the dataset (Corder and Foreman, 2009). Our modified significance level therefore becomes 0.01[7]. Using this new significance level has no impact on our results, as all of our results already are significant at a higher level (0.0041 and below). An additional risk worth noting here is that the grouping of countries may give rise to noise in our sample. Such noise could arise from the common legal origins in the group (see La Porta et al. 1998; 2006 for more on this). This increased risk of noise trade-off do, however, allow us to more feasibly use a Mann-Whitney U test as the number of tests needed have decreased to 10[8].

Running these ten possible combinations of Mann-Whitney U tests, comparing each legal group with each other, continue to reveal similar results to those of our previous tests. The results are as follows (See Appendix 5 for complete test results):

[6] Type I error occurs when one rejects H_0 despite it being true (Collis and Hussey, 2009)
[7] 0.05/5 = 0.01
[8] SUM 1+2+3+4=10

Table 5.2.6: Mann-Whitney U test, by legal origin

Legal origin	value	German civil law	French civil law	Scandi-navian civil law	Civil law (un-sorted)	English common law
German civil law	z =	-				
	prob > |z| =	-				
French civil law	z =	10.036	-			
	prob > |z| =	0.0000	-			
Scandinavian civil law	z =	5.142	13.431	-		
	prob > |z| =	0.0000	0.0000	-		
Civil law (unsorted)	z =	3.860	-6.604	8.550	-	
	prob > |z| =	0.0001	0.0000	0.0000	-	
English common law	z =	-4.252	6.959	-8.902	-0.047	-
	prob > |z| =	0.0000	0.0000	0.0000	**0.9622***	-

Testing for - H0: GW/E(legal origin 1) = GW/E(legal origin 2)

* Not Significant at the 0.05 significance level

As we can see above in Table 5.2.6, nine of the ten tests show significant differences between the two groups, with all of them being significant to a level of 0.0000[1]. Only one test, the one comparing unsorted civil law countries and English common law countries, show non-significant differences. The caveat with these tests is that they only say something about differences between groups of countries rather than individual countries, which is our primary interest here. The tests do, however, show significant differences across a broad spectrum of EU countries, pointing towards the fact that differences in reported goodwill do exist within our sample.

The last two tests in the section will focus on determining if there are any significant differences between the EU and the US. The results of these will allow for a more indirect comparison between EU countries. The usages of these tests will be outlined further in the next section. First, we aim to perform a Mann-Whitney U test comparing the companies in the EU and the US, which exhibits the following results:

Table 5.2.7: Mann-Whitney U test, EU vs. US

	obs	rank sum	expected
EU	13382	1.29E+08	1.30E+08
US	6053	5.99E+07	5.88E+07
Combined	19435	1.89E+08	1.89E+08
Unadjusted variance		1.31E+11	
Adjusted for ties		-2.41E+10	
Adjusted variance		1.07E+11	
H0: GW/E(EU) = GW/E(US)			
z =		-3.169	
prob > | z | =		**0.0015**	

Table 5.2.7 above shows that there is a significant difference in the goodwill level between countries in the EU and the US, with a result of 0.0015 which is below our significance level of 0.05. One should here perhaps also reiterate that there is little impact on the results from the fact that the number of companies differ in each group. This quite simply because the test measures how well the observations cluster together and does not use any form of summation, or similar operation, that is affected by the number of observations in each sample (Corder and Foreman, 2009). An extension of this test is to perform additional Mann-Whitney U tests, comparing each individual EU country with the US. A summary of the results from these, in total 21, tests is presented below. For a complete list, refer to Appendix 6.

Table 5.2.8: Mann-Whitney U test, EU countries vs. US

Country	value	USA	Country	value	USA
Austria	z =	3.503	**Italy**	z =	9.125
	prob > |z| =	**0.0005**		prob > |z| =	**0.0000**
Belgium	z =	0.853	**Lithuania**	z =	0.804
	prob > |z| =	**0.3937***		prob > |z| =	**0.4215***
Czech Republic	z =	4.076	**Netherlands**	z =	2.946
	prob > |z| =	**0.0000**		prob > |z| =	**0.0032**
Denmark	z =	-16.631	**Poland**	z =	-5.662
	prob > |z| =	**0.0000**		prob > |z| =	**0.0000**
Estonia	z =	-1.828	**Portugal**	z =	2.84
	prob > |z| =	**0.0676***		prob > |z| =	**0.0045**
Finland	z =	6.388	**Slovakia**	z =	-6.568
	prob > |z| =	**0.0000**		prob > |z| =	**0.0000**
France	z =	4.925	**Slovenia**	z =	-6.259
	prob > |z| =	**0.0000**		prob > |z| =	**0.0000**
Germany	z =	-1.884	**Spain**	z =	2.781
	prob > |z| =	**0.0596***		prob > |z| =	**0.0054**
Greece	z =	-3.545	**Sweden**	z =	0.250
	prob > |z| =	**0.0004**		prob > |z| =	**0.8025***
Hungary	z =	-3.115	**UK**	z =	-1.691
	prob > |z| =	**0.0018**		prob > |z| =	**0.0908***
Ireland	z =	2.665	* Not significant		
	prob > |z| =	**0.0063**	Testing for - H0: GW/E(Country 1) = GW/E(USA)		

Looking at Table 5.2.8, the overall picture from these tests show that 18 out of the 21 EU countries in the sample exhibit significant differences when compared to the US. The nature of a Mann-Whitney U test means that we are unable to measure the strength in the differences (Corder and Foreman, 2009). We are, therefore, unable to get any indication to how substantial the differences might or might not be.

The main purpose of these tests has been to provide evidence towards our H1 hypothesis. The tests have all focused on looking at the differences in our dependent variable across different countries and group of countries in order to generate the needed evidence. The main issue is that the statistical tools available to us, given the scope of this study, are quite imprecise.

5.3 Enforcement

Given the evidence presented above, we move on to the main interest in this study; namely to investigate enforcement's effect on differences in reported goodwill. In order to be able to investigate this main point of interest, it is important to conclude that or sample exhibits differences similar to those of Bradshaw and Miller (2012). This has, to reiterate, been the main purpose of the first set of tests. The following set of tests will therefore be concerned with trying to confirm our second hypothesis:

H2 = There is a negative correlation between goodwill level and enforcement levels in the different countries in the EU.

In this study, we are following companies over a number of years and are interested in how certain parameters lead to different changes over time. By converting our data to panel format, we are able to use a cross-sectional time series regression model, which is more suited when one wants to follow a set number of objects, in this case firms, over a number of years (StataCorp, 2009). This type of regression model will also allow us to control for fixed effects arising on either a company or country level. The general regression model can be described as follows:

$$GW/_E = \beta_0 + \beta_{Audit} + \beta_{EC} + \beta_{RQ\ Index} + \sum \beta(UNA, MC/_E) + \sum Fixed\ Effects$$

This model also allows us to reduce noise in our statistical tests while it, at the same time, hinders us from using e.g. country as an explanatory variable in our tests. In addition to this, we also have to take into consideration any potential time effects that might affect our results. To this end, we have here included one additional independent time variable that has not been previously discussed. This variable simply controls for each year, 2006-2012, in our sample and ensures any time effects are limited.

Running a cross-sectional regression fixed effects model with GW/E as the dependent variable with Audit, EC and RQ index as the main independent variables controlling for MC/E, UNA and time effects yields the following result:

Table 5.3.1: Fixed effect regression

GW/E	Coef.	Std. Err.	t	P>| t |	[95% Conf. Interval]	
RQ index	0.038512	0.024355	1.58	0.114	-0.0092289	0.0862521
Audit	(omitted)					
EC	0.083272	0.027444	3.03	0.002	0.029476	0.1370674
UNA	0.052856	0.00141	37.48	0.000	0.0500922	0.0556205
MC/E	0.016611	0.000804	20.65	0.000	0.0150342	0.0181879
Year						
2007	0.022497	0.008908	2.53	0.012	0.0050368	0.0399579
2008	0.051242	0.009022	5.68	0.000	0.0335575	0.0689256
2009	0.048837	0.009225	5.29	0.000	0.030754	0.0669189
2010	0.043429	0.008989	4.83	0.000	0.0258088	0.061049
2011	0.059551	0.009089	6.55	0.000	0.0417346	0.0773679
2012	0.063263	0.009663	6.55	0.000	0.0443211	0.082205
Constant	-0.0478	0.036375	-1.31	0.189	-0.1191025	0.023501

note: Audit omitted because of collinearity
No. of obs = 14883 No. of groups = 3592 R^2 within = 0.1724

The results of the regression, as seen in Table 5.3.1, show significant results on most independent variables. The only variable not exhibiting significant values is the RQ index variable. The variable Audit, denoting Big 4 auditing firm, is omitted in the regression as it covaries with one or more of the other independent variables. The audit variable is omitted due to the fact that it does not vary over time, causing it to perfectly correlate with another variable such as industry that is the same across the entire period. It should here also be noted that the audit variable in theory is able to vary over time, as companies are able to switch auditors at their discretion. This is, however, not something that appears to have happened in our sample. At least companies not switching between a Big 4 and a non-Big 4. Due to this somewhat unfortunate event, a fixed effects regression is not going to be able to analyse the audit variable, which necessitates the use of other regression models. While significant, the variable for changes in a country's enforcement (EC) does not show the expected sign, showing a positive coefficient instead of a negative one. The remaining independent variables exhibit the expected positive coefficients. Before any conclusions can be drawn from this fixed effect regression, it is important to manage potential heteroscedasticity within the dependant variable. Heteroscedasticity means that each dependant observation in the sample does not have the same variance. This introduces skewness in the regression results. There exist a number of tools for dealing with these effects. The one chosen in this study, involves the usage of clustering of firms to generate a robust standard error which takes into account the different variances (StataCorp, 2009). Running the above regression once more, including the robust clustering effects, generates the following results, as seen in Table 5.3.2 below:

Table 5.3.2: Fixed effects cluster regression

GW/E	Coef.	Robust Std. Err.	t	P> | t |	[95% Conf.	Interval]
RQ index	0.0385116	0.0303687	1.27	0.205	-0.02103	0.0980532
Audit	(omitted)					
EC	0.0832717	0.037724	2.21	0.027	0.009309	0.1572344
UNA	0.0528564	0.0050747	10.42	0.000	0.0429067	0.062806
MC/E	0.0166111	0.0022842	7.27	0.000	0.0121326	0.0210895
Year						
2007	0.0224974	0.0105176	2.14	0.033	0.0018763	0.0431184
2008	0.0512416	0.011436	4.48	0.003	0.0288199	0.0736633
2009	0.0488365	0.0113552	4.30	0.001	0.0265732	0.0710997
2010	0.0434289	0.0113423	3.83	0.000	0.0211909	0.065667
2011	0.0595512	0.0118691	5.02	0.000	0.0362804	0.082822
2012	0.063263	0.0123113	5.14	0.000	0.0391251	0.0874009
Constant	-0.047801	0.0457913	-1.04	0.297	-0.1375803	0.0419787

note: Audit omitted because of collinearity

No. of obs = 14883 No. of groups = 3592 R^2 within = 0.1724

Performing this operation causes an increase in the standard error used in the regression, which in turn leads to changes in the significance of the variables. The operation leaves the coefficient results unaffected, therefore showing the same results as above albeit at a different level of significance. Only one variable, controlling for the year 2007, showed a change from a significant result to a non-significant one. The significance levels of the remaining independent variables did not exhibit significant changes large enough to pass over or under the significance threshold of 0.05. The entire regression model also remained significant after the robustness test. The overall results of the first two tests show limited support for the H2 hypothesis. It does, however, confirm that there exists an impact on GW/E from the control variables UNA and MC/E.

As noted earlier, we have a strong covariation between two of the independent variables in the study, namely EC and RQ index. This could then have introduced noise in our statistical tests. To eliminate such potential noise, two separate tests were run. In the first test EC was excluded and in the second RQ index was excluded. Doing these tests allowed us to look at the individual effects of both of the variables without the potential noise impact of the former. The tests did however, not yield any results that significantly differed from the results when both variables were included. The coefficients for RQ index remained insignificant while EC remained significant. It would then appear that the covariation between the two variables is of little impact to the overall results of the statistical tests. We have therefore chosen to exclude the tabulation of these tests in this empirical section.

These regressions so far have operated on the assumption that changes in the independent variables have an immediate effect on the dependant variable. This is not always the case, especially when it comes to enforcement change. It may take some time for these changes to generate any substantial difference on a company's reported goodwill. These notions are similar to what Christensen et al (2013), where lag effects existed between liquidity effects and enforcement changes. Given these results, we would assume that some form of lag effect is present within our sample as well. As a means of testing this notion, the study's dependant variable has been lagged forward one year. This results in the effects of the independent variable being seen as affecting the next forthcoming year as opposed to the year in which the variable was recorded. Using a fixed effects regression, similar to that of 5.3.1, with a one year lag yields the following results:

Table 5.3.3: Fixed effect regression (lagged)

GW/E (lag)	Coef.	Std. Err.	t	P>| t |	[95% Conf.	Interval]
RQ index	0.0205169	0.0316382	0.65	0.517	-0.0415	0.0825341
Audit	(omitted)					
EC	0.1475651	0.0440897	3.35	0.001	0.061141	0.2339896
UNA	0.0073624	0.0019229	3.83	0.000	0.003593	0.0111317
MC/E	-0.0016725	0.0010617	-1.58	0.115	-0.00375	0.0004086
Year						
2007	0.0036953	0.0138014	0.27	0.789	-0.02336	0.0307487
2008	0.0200021	0.0139272	1.44	0.151	-0.0073	0.0473021
2009	0.035047	0.0142107	2.47	0.151	0.007191	0.0629028
2010	0.0394665	0.0139241	2.83	0.005	0.012173	0.0667605
2011	0.0371046	0.0140589	2.64	0.008	0.009547	0.0646627
2012	0.0511696	0.0147043	3.48	0.001	0.022346	0.0799929
Constant	0.0659066	0.0489878	1.35	0.179	-0.03012	0.1619323
note: Audit omitted because of collinearity						
No. of obs = 13732		No. of groups = 3495			R^2 within = 0.1724	

From the results in Table 5.3.3, we can see that enforcement change likely has an integrated lag effect. Testing for lag effects show an increased coefficient for enforcement change as opposed to the one generated for the non-lagged variable. This is indicative of enforcement change being affected by some form of lag factor, which means that there is a delay between the change occurring and actual effects on accounting numbers. The results here remain significant for enforcement change. The UNA measure show small movements in its coefficient, indicating a limited lag effect. The UNA measure also remains significant. MC/E, the proxy for economic performance, does however not show significant results when being lagged. This tells us that MC/E only is a reliable predictor of changes in reported goodwill during the year in which a company shows good economic performance.

While useful for our analysis, the cross-sectional fixed effects regression has some limitations in the implementation for this study. Firstly, due to the fact that the fixed effects include both country and industry parameters, we are unable to isolate and look at these variables specifically. We are likewise unable to get any data from the Audit variable due to its collinearity with another variable. A workaround to this issue is to use an OLS-regression instead to look closer at these two variables. An OLS-regression, or ordinary least square regression, is a simpler type of regression compared to previous fixed effects regression. The OLS-regression works by aiming to plot a linear relationship between an independent and a dependant variable. This is done by finding the line which minimizes the sum of all the squared distances between the observations in a sample. In other words, it aims to plot a line that cuts right between all the observations in a dataset. It should here also be noted that an OLS regression does not take into consideration the cross-sectional time series nature of our data (StataCorp, 2009). When performing this OLS regression we also have to add two additional variables, one for country and one for industry. This is needed as the OLS regression is unable to use the fixed effects model. Performing an OLS regression using the same variables as the previous tests with the additional controls as well as testing for robustness yields the following result (See Appendix 7 for full test results):

Table 5.3.4: OLS linear regression

GW/E	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Audit	0.0526073	0.012632	4.16	0.00	0.0278406	0.0773739
RQ index	0.0143462	0.0384485	0.37	0.71	-0.061037	0.0897292
EC	0.0546559	0.0405638	1.35	0.18	-0.024875	0.1341863
MC/E	0.010273	0.0020149	5.1	0.00	0.0063225	0.0142235
UNA	0.0643534	0.004377	14.7	0.00	0.0557718	0.072935
Industry						
Utility	-0.0266208	0.027137	-0.98	0.33	-0.079826	0.0265846
Transportation	-0.1136454	0.0382677	-2.97	0.00	-0.188674	-0.0386167
Banks/Sales/Loans	-0.2712398	0.0226528	-12	0.00	-0.315654	-0.2268262
Insurance	-0.1427436	0.0368655	-3.87	0.00	-0.215023	-0.0704641
Other Financials	-0.2145558	0.0149302	-14.4	0.00	-0.243828	-0.1852834
Year						
2007	0.0067349	0.0119176	0.57	0.57	-0.016631	0.0301009
2008	0.0236647	0.0128526	1.84	0.07	-0.001534	0.0488638
2009	0.0152468	0.0128473	1.19	0.24	-0.009942	0.0404355
2010	0.0064301	0.0129742	0.5	0.62	-0.019007	0.0318677
2011	0.0110253	0.0132937	0.83	0.41	-0.015039	0.0370893
2012	0.0041812	0.0136624	0.31	0.76	-0.022606	0.0309681
Constant	0.0206063	0.0772901	0.27	0.79	-0.130931	0.1721433
No. Of obs = 14880	R^2 = 0.1554					

The focus in the test, presented in Table 5.3.4 above, is to look at the effects of the auditing variable. We will pay less focus to the other variables as we already have tested these in a more suitable test above. The fact that the OLS regression does not use the fixed effects model also allows us to look closer at the effects of different industries and countries. Looking specifically at these three factors show mixed results. Audit show a significant result with a coefficient similar to those in the previous tests. Audit also, like the variable for enforcement change, shows a positive instead of the expected negative sign. Industry also shows a significant result with a negative coefficient. Looking at the controls for the 22 countries (Country 1, Austria, being the point of comparison) show wildly varying results both in significance level as well as at the impact of the coefficient (See Appendix 7).

6. Analysis

In this section, we will interpret the results from the previous section and analyse them. We will seek to explain the results in relation to the study's hypotheses.

A fundamental assumption for this study has been that there exist differences in reported goodwill among the EU countries. This assumption has primarily been based on Bradshaw and Miller (2008). It has, thus, been necessary to confidently ensure that our sample show similar differences to other authors. The first set of tests was, therefore, devised to generate such assurance. These tests, albeit somewhat crude, helps to provide a general picture of the reported goodwill levels. The overall results points towards reported goodwill differences existing within the EU. The initial tests show that at least one pair of EU countries exhibit significant differences. Using the notions of legal origin presented by La Porta et al. (1998) allowed for somewhat more precise testing. These tests would then come to be able to fulfil two purposes. Firstly, it generated more evidence that assist in ensuring that the sample shows the expected differences. Secondly, it showed support for the notions of the impact of legal origin by La Porta et al. (1998) and others. This secondary evidence helps to reinforce the notion that legal origin might play an important role in a country's overall enforcement package. This is, however, something that is not covered in greater detail in this study. Analysing the results of the first test shows that four of these groups have at least one pair of two countries that are statistically significant from each other. Overall, at least eight of the total 22 countries show significant differences. Likewise, comparisons between the groups show that nine out of ten exhibit significant differences. While quite crude in nature, the tests performed above do indicate that our sample indeed exhibits the expected differences in reported goodwill.

In addition to this direct method of looking at the differences in reported goodwill, there exists a somewhat indirect method to provide supplementary evidence to the notion that there exist differences. This method utilizes the previously known fact that there exist substantial differences between Sweden and the US in terms of reported goodwill (Gauffin and Thörnsten, 2012; Hamberg et al, 2011). As the EU and the US use standards that almost mirror each other in this question there should not, theoretically, exist any significant differences between reported goodwill in the US and other EU countries. But as our results clearly indicate, such differences do exist; both when comparing the entire EU against the US as well as individual EU countries against the US. This distinction points towards existing differences between countries when it comes to reported goodwill levels. Couple this with the other pieces of evidence in this study; there exists a strong case for claiming that there indeed exist country specific differences in reported goodwill between countries. These results are in line with the previously stated H1 hypothesis, that there exist differences in reported goodwill between EU countries. Overall, we find the results of the statistical tests strong enough to allow us to safely reject the relevant null hypothesis of H_1.

The focus of this study has been to look at the impact that a country's enforcement level has had on the companies' reported goodwill level. When we looked at enforcement, we specifically looked at the regulatory quality index of each country (RQ index), when a change in enforcement was made (EC), and finally the auditors that the companies had hired (Audit). The main assumption, in all of these areas, was that there would be negative coefficients between these different enforcement measures and the reported goodwill level. In other words, the expectations were for there to be lower levels of goodwill as different enforcement efforts increased. These assumptions are built on the findings of Christensen et al. (2013), where increased enforcement was linked with increased compliance with the IFRS rules. Let us look at the results for each of the independent variables in turn, beginning with the regulatory quality index. The results for the regulatory quality index are insignificant across all the performed tests. These results are quite surprising given the findings of Christensen et al (2013), where the regulatory quality played an important explanatory role. Potential explanations to these differences in results can the fact that there is a difference in the focus of the two studies, which might not be affected by the same factors. Another possible explanation lies with the regulatory variable itself. The regulatory index is not specifically designed for enforcement within accounting, but rather towards more general legal enforcement. This can limit its explanatory power in more technical accounting issues, such as goodwill. Looking closer at Enforcement change also reveals some unexpected results. Enforcement change shows a positive coefficient, indicating a positive relationship between changes in enforcement and reported goodwill. This raises the question if the hypothesis is correct or not. A possible explanation is that the assumption of increased enforcement and, hence, increased compliance with IFRS leads to lower goodwill levels is incorrect. If this assumption is incorrect, it would also bring into questions how large of an impact agency-based motives will have on reported goodwill levels. The impact of auditing show similar signs to that of enforcement changes. Auditing also generated an unexpected result, showing a positive relationship instead of a negative one. These results point towards potential errors in the fundamental assumption used, that increased compliance does not necessarily lead to lower levels of reported goodwill. We also see that changes in enforcement have a stronger relationship with reported goodwill than the choice of auditor. The relatively strong relationship between Enforcement change and reported goodwill could then be seen as confirming the results of Christensen et al (2013).

If we switch our focus to the control variables in this study, we specifically looked three different variables. Firstly, we looked at performance measures, using the Market Capitalization as a proxy. Secondly, we looked at management incentive, using the UNA measure as a proxy. Finally, we looked at the industry in which the companies operate in. All three control variables showed significant results, with positive coefficients. If we begin with the performance measure, the results show that there is a significant difference between the performance measure and goodwill levels, meaning that when performance is high, goodwill is high. And when performance is low, goodwill is low, which lines up with what Churyk (2005) states in his article. If we then move on to the incentive variable, the results showed a significant difference, with a positive coefficient, in goodwill levels and the UNA measure. This indicates that companies with high unverifiability tend to have high goodwill levels. This

is in accordance with what Ramanna and Watts (2012) state in their article, where they mean that the existence of high unverifiability within a company may lead to opportunistic behaviour. Finally, if we look at the industry variable, the results indicate that which industry a company operates in may impact the goodwill level, as it differs between the six different industry groups. This is something many articles have looked at (see for instance Glaum et al., 2013).

Looking at the overall picture, the evidence indicates that there is a relationship between enforcement and reported goodwill levels. This relationship albeit might not be the one expected at the inception of the study. This means that the H0 hypothesis of H2 can be rejected in favour of an alternative hypothesis. The results of the study are unable to confirm the expected negative relationship. It does, however, confirm an alternative H2 hypothesis; that there is a relationship between reported goodwill and enforcement levels. We also find that both auditing and enforcement changes play a critical role in the overall enforcement package. The tests also show significant results for the primary control variables within the study. Their relatively high coefficients of market capitalisation and UNA also indicated that they offer a high level of explanatory power.

7. Concluding remarks

In this section, we will seek to make some concluding remarks regarding this study. We will discuss whether the purpose of this study has been achieved. We will also answer our hypotheses as well as the study's main research question. Finally, we will present suggestions for future research.

7.1 Conclusion

The purpose of this study has been to investigate the impact of enforcement on companies reported goodwill. To that end, our study shows that enforcement levels are likely to have an impact on the overall reported goodwill levels. It does, however, not provide evidence towards such a relationship being negative in nature, raising further questions as to how effective enforcement is in reigning in high goodwill levels. The study is, at the same time, able to show that enforcement does not exist in isolation and that many other factors play an important role in explaining differences in accounting under IFRS. The results of this study have also been unable to provide any indication towards the importance of regulatory, or indeed overall legal quality, in relation to overall goodwill levels. This brings to light some of the problems when using indexes as proxies. While rich in information content they tend to be broad and encompass several different factors and measures that might only be tangentially related to the subject at hand. This a likely explanation to the insignificant results provided by the index in our study. Another caveat of the index in this study is how we ourselves have not been able to further investigate the data behind the index and more closely examine its exact suitability for our purposes. This might once again explain why we see insignificant results.

The study also shows results, as many previous studies, that goodwill levels vary between EU countries. Coupling these two results of our study together shows that reported goodwill levels vary across countries, as well as that this might be caused by factors beyond the IFRS regulation. This brings into question how well the harmonization of the IFRS accounting really is. Given the goals of the IASB, in creating a universal harmonized accounting regulation, we would not expect to so consistently see these significant country differences. These recurring differences between IFRS following countries could also bring into question how good the accounting quality actually is under the IFRS. Especially the notion of comparability comes to mind. We, likewise, see similar limitations within the harmonization work between the IASB and FASB. The consistently significant difference between the EU and US, questions how well goodwill accounting actually is harmonized.

In summary, we were able to conclude that there are differences in goodwill accounting between countries in the EU applying the IFRS. Furthermore, there was a relation between enforcement and goodwill levels in these countries, but not in the expected direction. The answer to the study's research question is then that enforcement does have an impact on companies' reported goodwill levels, where goodwill levels increase where enforcement increases.

7.2 Suggestions for future research

A primary suggestion for future research would likely include applying the notions of enforcement to other aspects of the IFRS regulation. Doing this would allow researchers to investigate the overall impact of enforcement on the IFRS regulation. It would also be interesting to investigate how goodwill reporting in countries following IFRS outside of the EU is affected by enforcement levels. Similar studies to ours would also be interesting, especially if they are able to include a more complete dataset and perhaps look at different dimension that might affect goodwill reporting. In particular, the effects of the financial crisis, spring to mind. Other more qualitative work, for instance investigating the perceptions of high enforcement levels and their effects on how company's account for goodwill, might also be of interest. Lastly, a more thorough study investigating the differences in goodwill between the US and EU is likely to be of interest. Such a study would then bring knowledge to how substantial the differences between the regions actually are. The most obvious use for this would then be to evaluate the harmonization work between the FASB and IASB.

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Appendix 1

Sample countries

Country	Exchange
Austria	Vienna Stock Exchange
Belgium	Euronext Brussels
Czech Republic	Prague Stock Exchange
Denmark	Copenhagen Stock Exchange
Estonia	Tallinn Stock Exchange
Finland	Helsinki Stock Exchange
France	Euronext Paris
Germany	Berliner Börse Börsen Hamburg und Hannover Börse München Börse Stuttgart Frankfurt Stock Exchange
Greece	Athens Stock Exchange
Hungary	Budapest Stock Exchange
Ireland	Irish Stock Exchange Irish Enterprise Exchange
Italy	Borsa Italiana
Lithuania	Vilnius Stock Exchange
Netherlands	Euronext Amsterdam
Poland	Warsaw Stock Exchange
Portugal	Euronext Lisbon
Slovakia	Bratislava Stock Exchange
Slovenia	Ljubljana Stock Exchange
Spain	Madrid Stock Exchange
Sweden	Stockholm Stock Exchange Nordic Growth Market
UK	London Stock Exchange
USA	NASDAQ Stock Market New York Stock Exchange

Appendix 2

DataStream codes

WC06010 - General industry classification (key item)

WC07800 - Parent Auditor 1

WC18280 - Goodwill/cost in excess of assets purchased

WC03501 - Common Equity

WC02001 - Cash & Short Term Investments

WC03255 - Total Debt

WC02999 - Total assets

WC03351 - Total liabilities

WC07536 - Accounting Standards followed

WC08001 - Market Capitalization

Appendix 3

Regulatory Quality Index

Country / RQ	2006	2007	2008	2009	2010	2011	2012
Austria	1,65	1,70	1,61	1,46	1,47	1,39	1,51
Belgium	1,32	1,42	1,39	1,32	1,29	1,24	1,22
Czech Rep	1,11	1,03	1,16	1,33	1,30	1,21	1,06
Denmark	1,81	1,92	1,89	1,90	1,88	1,91	1,79
Estonia	1,30	1,37	1,43	1,41	1,40	1,39	1,40
Finland	1,63	1,55	1,62	1,83	1,89	1,83	1,82
France	1,23	1,28	1,28	1,21	1,31	1,15	1,11
Germany	1,57	1,62	1,49	1,53	1,58	1,56	1,53
Greece	0,84	0,90	0,88	0,82	0,64	0,51	0,50
Hungary	1,21	1,19	1,19	1,08	1,02	1,03	0,97
Ireland	1,85	1,85	1,92	1,70	1,61	1,59	1,56
Italy	0,95	0,92	0,96	0,95	0,89	0,71	0,73
Lithuania	0,97	1,08	1,12	0,95	0,97	0,93	1,10
Netherlands	1,68	1,80	1,77	1,71	1,74	1,82	1,75
Poland	0,71	0,77	0,82	0,95	0,99	0,94	0,96
Portugal	1,06	1,07	1,09	0,97	0,72	0,62	0,81
Slovakia	1,14	1,03	1,12	1,06	1,00	1,00	1,03
Slovenia	0,78	0,80	0,83	0,91	0,75	0,68	0,61
Spain	1,15	1,21	1,24	1,18	1,16	1,07	0,94
Sweden	1,44	1,58	1,64	1,67	1,67	1,91	1,89
UK	1,84	1,85	1,77	1,59	1,74	1,66	1,64
US	1,64	1,50	1,54	1,39	1,43	1,45	1,29

The World Bank: World Governance Indicators (WGI)

Appendix 4

Kruskal-Wallis tests, by legal origin

German civil law	obs	rank sum
Austria	108	1.88E+05
Czech Republic	20	4.33E+04
Estonia	80	1.02E+05
Germany	1889	2.66E+06
Greece	132	1.59E+05
Hungary	93	1.10E+05
Slovakia	128	1.24E+05
Slovenia	278	3.37E+05

chi^2 = 106.029 with 7 d.f.
probability = 0.0001

chi^2 with ties = 136.510 with 7 d.f.
probability = 0.0001

French civil law	obs	rank sum
Belgium	215	1.97E+05
France	1290	1.26E+06
Netherlands	114	1.20E+05
Portugal	58	6.24E+04
Spain	276	2.72E+05

chi^2 = 6.274 with 4 d.f.
probability = 0.1796

chi^2 with ties = 6.906 with 4 d.f.
probability = 0.1409

Scandinavian civil law	obs	rank sum
Denmark	1117	1.19E+06
Finland	78	1.50E+05
Sweden	1374	1.96E+06

chi^2 = 210.993 with 2 d.f.
probability = 0.0001

chi^2 with ties = 330.738 with 2 d.f.
probability = 0.0001

Civil law (unsorted)	obs	rank sum
Italy	550	8.24E+05
Lithuania	38	4.94E+04
Poland	1777	1.92E+06

chi^2 = 157.001 with 2 d.f.
probability = 0.0001

chi^2 with ties = 188.271 with 2 d.f.
probability = 0.0001

Common law	obs	rank sum
Ireland	64	3.73E+05
UK	3703	1.80E+07
USA	6053	2.99E+07

chi^2 = 9.176 with 2 d.f.
probability = 0.0102

chi^2 with ties = 10.979 with 2 d.f.
probability = 0.0041

Appendix 5

Mann-Whitney U tests, by legal origin

Mann-Whitney U test: Civil law (unsorted) vs. French civil law

Legal Origin	Obs	Rank Sum	Expected
Civil law (unsorted)	2365	4855862.5	5107217.5
French civil law	1953	4468858.5	4217503.5
Combined	4318	9324721	9324721
unadjusted variance	1.66E+09		
adjustment for ties	-2.14E+08		
adjusted variance	1.45E+09		
H0: GW/E (civil law (unsorted)) = GW/E (French civil law)			
z =	**-6.604**		
Prob > |z| =	**0.0000**		

Mann-Whitney U test: Civil law (unsorted) vs. German civil law

Legal Origin	Obs	Rank Sum	Expected
Civil law (unsorted)	2365	6204871.5	6023655
German civil law	2728	6766999.5	6948216
Combined	5093	12971871	12971871
unadjusted variance	2.74E+09		
adjustment for ties	-5.35E+08		
adjusted variance	2.20E+09		
H0: GW/E (civil law (unsorted)) = GW/E (German civil law)			
z =	**3.860**		
Prob > |z| =	**0.0001**		

Mann-Whitney U test: Civil law (unsorted) vs. Scandinavian civil law

Legal Origin	Obs	Rank Sum	Expected
Civil law (unsorted)	2365	6204388	5835637.5
Scandinavian civil law	2569	5970257	6339007.5
Combined	4934	12174645	12174645
unadjusted variance	2.50E+09		
adjustment for ties	-6.39E+08		
adjusted variance	1.86E+09		
H0: GW/E (civil law (unsorted)) = GW/E (Scandinavian civil law)			
z =	**8.550**		
Prob > |z| =	**0.0000**		

Mann-Whitney U test: Civil law (unsorted) vs. English common law

Legal Origin	Obs	Rank Sum	Expected
Civil law (unsorted)	2365	14403300	14409945
English common	9820	59839906	59833260
Combined	12185	74243205	74243205
unadjusted variance	2.36E+10		
adjustment for ties	-3.88E+09		
adjusted variance	1.97E+10		
H0: GW/E (civil law (unsorted)) = GW/E (English common law)			
z =	**-0.047**		
Prob > |z| =	**0.9622**		

Mann-Whitney U test: French civil law vs. German civil law

Legal Origin	Obs	Rank Sum	Expected
French civil law	1953	4991653.5	4571973
German civil law	2728	5966567.5	6386248
Combined	4681	10958221	10958221
unadjusted variance	2.08E+09		
adjustment for ties	-3.30E+08		
adjusted variance	1.75E+09		
H0: GW/E (French civil law) = GW/E (German civil law)			
z =	**10.036**		
Prob > |z| =	**0.0000**		

Mann-Whitney U test: French civil law vs. Scandinavian civil law

Legal Origin	Obs	Rank Sum	Expected
French civil law	1953	4934043.5	4416709.5
Scandinavian civil law	2569	5292459.5	5809793.5
Combined	4522	10226503	10226503
unadjusted variance	1.89E+09		
adjustment for ties	-4.08E+08		
adjusted variance	1.48E+09		
H0: GW/E (French civil law) = GW/E (Scandinavian civil law)			
z =	**13.431**		
Prob > |z| =	**0.0000**		

Mann-Whitney U test: French civil law vs. English common law

Legal Origin	Obs	Rank Sum	Expected
French civil law	1953	12377371	11497311
English common law	9820	56930281	57810340
Combined	11773	69307651	69307651
unadjusted variance	1.88E+10		
adjustment for ties	-2.83E+09		
adjusted variance	1.60E+10		
H0: GW/E (French civil law) = GW/E (English common law)			
z =	**6.959**		
Prob > |z| =	**0.0000**		

Mann-Whitney U test: German civil law vs. Scandinavian civil law

Legal Origin	Obs	Rank Sum	Expected
German civil law	2728	7468341	7226472
Scandinavian civil law	2569	6563412	6805281
Combined	5297	14031753	14031753
unadjusted variance	3.09E+09		
adjustment for ties	-8.82E+08		
adjusted variance	2.21E+09		
H0: GW/E (German civil law) = GW/E (Scandinavian civil law)			
z =	**5.142**		
Prob > |z| =	**0.0000**		

Mann-Whitney U test: German civil law vs. English common law

Legal Origin	Obs	Rank Sum	Expected
German civil law	2728	16470845	17116836
English common law	9820	62261581	61615590
Combined	12548	78732426	78732426
unadjusted variance	2.80E+10		
adjustment for ties	-4.93E+09		
adjusted variance	2.31E+10		
H0: GW/E (German civil law) = GW/E (English common law)			
z =	**-4.252**		
Prob > |z| =	**0.0000**		

Mann-Whitney U test: Scandinavian civil law vs. English common law

Legal Origin	Obs	Rank Sum	Expected
Scandinavian civil law	2569	14627514	15914955
English common law	9820	62122341	60834900
Combined	12389	76749855	76749855
unadjusted variance	2.61E+10		
adjustment for ties	-5.13E+09		
adjusted variance	2.09E+10		

H0: GW/E (Scandinaviancivil law) = GW/E (English common law)

z = **-8.902**

Prob > |z| = **0.0000**

Appendix 6

Mann-Whitney U tests, EU countries vs. USA

Mann-Whitney U test: Austria vs. USA

Country	obs	rank sum	expected
Austria	108	392338.5	332748
USA	6053	18589703	18649293
combined	6161	18982041	18982041
unadjusted variance		3.36E+08	
adjustment for ties		-4.64E+07	
adjusted variance		2.89E+08	
Ho: GW/E(Austria) = GW/E(USA)			
z =		3.503	
Prob > z =		**0.0005**	

Mann-Whitney U test: Belgium vs. USA

Country	obs	rank sum	expected
Belgium	215	694525.5	673917.5
USA	6053	18952521	18973129
combined	6268	19647046	19647046
unadjusted variance		6.80E+08	
adjustment for ties		-9.61E+07	
adjusted variance		5.84E+08	
Ho: GW/E(Belgium) = GW/E(USA)			
z =		0.853	
Prob > z =		**0.3937***	

Mann-Whitney U test: Czech Republic vs. USA

Country	obs	rank sum	expected
Czech Rep	20	90336	60740
USA	6053	18353365	18382961
combined	6073	18443701	18443701
unadjusted variance		6.13E+07	
adjustment for ties		-8.56E+06	
adjusted variance		5.27E+07	
Ho: GW/E(Czech Rep) = GW/E(USA)			
z =		4.076	
Prob > z =		**0.0000**	

Mann-Whitney U test: Denmark vs. USA

Country	obs	rank sum	expected
Denmark	1117	3055425.5	4005003.5
USA	6053	22652610	21703032
combined	7170	25708035	25708035
unadjusted variance		4.04E+09	
adjustment for ties		-7.80E+08	
adjusted variance		3.26E+09	
Ho: GW/E(Denmark) = GW/E(USA)			
z =		-16.631	
Prob > z =		**0.0000**	

Mann-Whitney U test: Estonia vs. USA

Country	obs	rank sum	expected
Estonia	80	218736.5	245360
USA	6053	18591175	18564551
combined	6133	18809911	18809911
unadjusted variance		2.48E+08	
adjustment for ties		-3.53E+07	
adjusted variance		2.12E+08	
Ho: GW/E(Estonia) = GW/E(USA)			
z =		-1.828	
Prob > z =		**0.0676***	

Mann-Whitney U test: Finland vs. USA

Country	obs	rank sum	expected
Finland	78	331312.5	239148
USA	6053	18466334	18558498
combined	6131	18797646	18797646
unadjusted variance		2.41E+08	
adjustment for ties		-3.31E+07	
adjusted variance		2.08E+08	
Ho: GW/E(Finland) = GW/E(USA)			
z =		6.388	
Prob > z =		**0.0000**	

* Not significant

Mann-Whitney U test: France vs. USA

Country	obs	rank sum	expected
France	1290	5054161	4736880
USA	6053	21909335	22226616
combined	7343	26963496	26963496
unadjusted variance		4.78E+09	
adjustment for ties		-6.28E+08	
adjusted variance		4.15E+09	
Ho: GW/E(France) = GW/E(USA)			
z =		4.925	
Prob > z =		**0.0000**	

Mann-Whitney U test: Germany vs. USA

Country	obs	rank sum	expected
Germany	1889	7351284	7502163.5
USA	6053	24190369	24039490
combined	7942	31541653	31541653
unadjusted variance		7.57E+09	
adjustment for ties		-1.15E+09	
adjusted variance		6.41E+09	
Ho: GW/E(Germany) = GW/E(USA)			
z =		-1.884	
Prob > z =		**0.0596***	

Mann-Whitney U test: Greece vs. USA

Country	obs	rank sum	expected
Greece	132	341702.5	408276
USA	6053	18788503	18721929
combined	6185	19130205	19130205
unadjusted variance		4.12E+08	
adjustment for ties		-5.92E+07	
adjusted variance		3.53E+08	
Ho: GW/E(Greece) = GW/E(USA)			
z =		-3.545	
Prob > z =		**0.0004**	

Mann-Whitney U test: Hungary vs. USA

Country	obs	rank sum	expected
Hungary	93	236863.5	285835.5
USA	6053	18652868	18603896
combined	6146	18889731	18889731
unadjusted variance		2.88E+08	
adjustment for ties		-4.11E+07	
adjusted variance		2.47E+08	
Ho: GW/E(Hungary) = GW/E(USA)			
z =		-3.115	
Prob > z =		**0.0018**	

Mann-Whitney U test: Ireland vs. USA

Country	obs	rank sum	expected
Ireland	64	231354.5	195776
USA	6053	18480549	18516127
combined	6117	18711903	18711903
unadjusted variance		1.98E+08	
adjustment for ties		-2.77E+07	
adjusted variance		1.70E+08	
Ho: GW/E(Ireland) = GW/E(USA)			
z =		2.665	
Prob > z =		**0.0063**	

Mann-Whitney U test: Italy vs. USA

Country	obs	rank sum	expected
Italy	550	2181056.5	1816100
USA	6053	19622050	19987006
combined	6603	21803106	21803106
unadjusted variance		1.83E+09	
adjustment for ties		-2.33E+08	
adjusted variance		1.60E+09	
Ho: GW/E(Italy) = GW/E(USA)			
z =		9.125	
Prob > z =		**0.0000**	

* Not significant

Mann-Whitney U test: Lithuania vs. USA

Country	obs	rank sum	expected
Lithuania	38	123801	115748
USA	6053	18429385	18437438
combined	6091	18553186	18553186
unadjusted variance		1.17E+08	
adjustment for ties		-1.64E+07	
adjusted variance		1.00E+08	
Ho: GW/E(Lithuania) = GW/E(USA)			
z =		0.804	
Prob > z =		**0.4215***	

Mann-Whitney U test: Netherlands vs. USA

Country	obs	rank sum	expected
Netherlands	114	403073	351576
USA	6053	18615955	18667452
combined	6167	19019028	19019028
unadjusted variance		3.55E+08	
adjustment for ties		-4.90E+07	
adjusted variance		3.06E+08	
Ho: GW/E(Netherlands) = GW/E(USA)			
z =		2.946	
Prob > z =		**0.0032**	

Mann-Whitney U test:Poland vs. USA

Country	obs	rank sum	expected
Poland	1777	6523260	6957843.5
USA	6053	24135105	23700522
combined	7830	30658365	30658365
unadjusted variance		7.02E+09	
adjustment for ties		-1.13E+09	
adjusted variance		5.89E+09	
Ho: GW/E(Poland) = GW/E(USA)			
z =		-5.662	
Prob > z =		**0.0000**	

Mann-Whitney U test:Portugal vs. USA

Country	obs	rank sum	expected
Portugal	58	212489.5	177248
USA	6053	18462727	18497968
combined	6111	18675216	18675216
unadjusted variance		1.79E+08	
adjustment for ties		-2.48E+07	
adjusted variance		1.54E+08	
Ho: GW/E(Portugal) = GW/E(USA)			
z =		2.84	
Prob > z =		**0.0045**	

Mann-Whitney U test: Slovakia vs. USA

Country	obs	rank sum	expected
Slovakia	128	274459	395648
USA	6053	18831012	18709823
combined	6181	19105471	19105471
unadjusted variance		3.99E+08	
adjustment for ties		-5.86E+07	
adjusted variance		3.40E+08	
Ho: GW/E(Slovakia) = GW/E(USA)			
z =		-6.568	
Prob > z =		**0.0000**	

Mann-Whitney U test: Slovenia vs. USA

Country	obs	rank sum	expected
Slovenia	278	742232	880148
USA	6053	19301714	19163798
combined	6331	20043946	20043946
unadjusted variance		8.88E+08	
adjustment for ties		-1.30E+08	
adjusted variance		7.58E+08	
Ho: GW/E(Slovenia) = GW/E(USA)			
z =		-6.259	
Prob > z =		**0.0000**	

* Not significant

Mann-Whitney U test: Spain vs. USA

Country	obs	rank sum	expected
Spain	276	950204.5	873540
USA	6053	19081081	19157745
combined	6329	20031285	20031285
unadjusted variance		8.81E+08	
adjustment for ties		-1.21E+08	
adjusted variance		7.60E+08	
Ho: GW/E(Spain) = GW/E(USA)			
z =		2.781	
Prob > z =		**0.0054**	

Mann-Whitney U test: Sweden vs. USA

Country	obs	rank sum	expected
Sweden	1374	5119557.5	5103036
USA	6053	22464321	22480842
combined	7427	27583878	27583878
unadjusted variance		5.15E+09	
adjustment for ties		-7.84E+08	
adjusted variance		4.36E+09	
Ho: GW/E(Sweden) = GW/E(USA)			
z =		0.250	
Prob > z =		**0.8025**	

Mann-Whitney U test: UK vs. USA

Country	obs	rank sum	expected
Spain	3703	17856427	18065086
USA	6053	29738219	29529561
combined	9756	47594646	47594646
unadjusted variance		1.82E+10	
adjustment for ties		-3.00E+09	
adjusted variance		1.52E+10	
Ho: GW/E(Spain) = GW/E(USA)			
z =		-1.691	
Prob > z =		**0.0908***	

* Not significant

Appendix 7

Complete OLS linear regression test

Table 5.3.3: OLS linear regression (complete)

Linear regression				Number of obs =	14880
				F(37, 3589) =	14.85
				Prob > F =	0.0000
				R-squared =	0.1554
				Root MSE =	0.37445
				(Std. Err. Adjusted for 3590 clusters in firm)	
GW/E	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**
Year					
2007	0.0067349	0.0119176	0.57	0.57	-0.016631 0.0301009
2008	0.0236647	0.0128526	1.84	0.07	-0.001534 0.0488638
2009	0.0152468	0.0128473	1.19	0.24	-0.009942 0.0404355
2010	0.0064301	0.0129742	0.5	0.62	-0.019007 0.0318677
2011	0.0110253	0.0132937	0.83	0.41	-0.015039 0.0370893
2012	0.0041812	0.0136624	0.31	0.76	-0.022606 0.0309681
MC/E	0.010273	0.0020149	5.1	0	0.0063225 0.0142235
UNA	0.0643534	0.004377	14.7	0	0.0557718 0.072935
EC	0.0546559	0.0405638	1.35	0.18	-0.024875 0.1341863
Audit	0.0526073	0.012632	4.16	0	0.0278406 0.0773739
RQ index	0.0143462	0.0384485	0.37	0.71	-0.061037 0.0897292
Industry					
Utility	-0.0266208	0.027137	-0.98	0.33	-0.079826 0.0265846
Transportation	-0.1136454	0.0382677	-2.97	0	-0.188674 -0.0386167
Banks/Sales/Loans	-0.2712398	0.0226528	-12	0	-0.315654 -0.2268262
Insurance	-0.1427436	0.0368655	-3.87	0	-0.215023 -0.0704641
Other Financials	-0.2145558	0.0149302	-14.4	0	-0.243828 -0.1852834

Continued

Country						
Belgium	0.0911087	0.0808445	1.13	0.26	-0.067397	0.2496146
Czech Republic	0.3481457	0.1938089	1.8	0.07	-0.031841	0.7281322
Denmark	-0.1331111	0.051188	-2.6	0.01	-0.233472	-0.0327507
Estonia	-0.03586	0.1071243	-0.33	0.74	-0.245891	0.1741706
Finland	0.1706644	0.1250949	1.36	0.17	-0.0746	0.4159287
France	0.088261	0.0557186	1.58	0.11	-0.020982	0.1975042
Germany	-0.0464559	0.0656425	-0.71	0.48	-0.175156	0.0822445
Greece	-0.1003834	0.0637635	-1.57	0.12	-0.2254	0.024633
Hungary	-0.074969	0.1000055	-0.75	0.45	-0.271042	0.1211042
Ireland	0.2231002	0.1642433	1.36	0.17	-0.098919	0.5451196
Italy	0.1075883	0.0649085	1.66	0.1	-0.019673	0.2348495
Lithuania	-0.076129	0.0900957	-0.84	0.4	-0.252773	0.1005149
Netherlands	-0.090025	0.0873773	-1.03	0.3	-0.261339	0.0812892
Poland	-0.0302309	0.0553299	-0.55	0.59	-0.138712	0.0782503
Portugal	-0.1415953	0.0704147	-2.01	0.04	-0.279652	-0.0035384
Slovakia	-0.0754213	0.0586426	-1.29	0.2	-0.190397	0.0395548
Slovenia	-0.1204023	0.0586538	-2.05	0.04	-0.2354	-0.0054042
Spain	0.0513558	0.0733158	0.7	0.48	-0.092389	0.1951006
Sweden	-0.017001	0.0658086	-0.26	0.8	-0.146027	0.112025
UK	0.0257742	0.0651238	0.4	0.69	-0.101909	0.1534576
USA	0.0740389	0.0498503	1.49	0.14	-0.023699	0.1717766
_cons	0.0206063	0.0772901	0.27	0.79	-0.130931	0.1721433