IFRS and Enforcement on Audit Quality: The Mediating Effect of Audit Fees

SUMMARY: This study examines the relationship between mandatory IFRS adoption, the level of enforcement within a country, and the audit quality with a mediation effect of audit fees. It extends current research by arguing that the mechanism that underlies the linkage between IFRS adoption and the level of enforcement on audit quality is the fees paid to auditors. The study period examined was 2003-2007 (the period around the mandatory IFRS adoption) and covered 2,479 firms located in European countries. Measuring audit quality by the probability of a restatement and the discretionary accruals the results show the audit fee is a mediator in the relationship between mandatory IFRS and audit quality. However, this holds only for discretionary accruals used as measurement for audit quality. Using the probability of any restatement as measurement there are no significant results. One limitation of this study is that the audit fee data contains a lot of missing observations, causing the relative representation of the countries is disproportionate and making hard conclusions is not possible. Therefore this study is more or less an explorative one: it wants to give new insights regarding the linkage between mandatory IFRS adoption and the level of enforcement on audit quality.

KEYWORDS: audit quality | audit fee | IFRS | enforcement | discretionary accruals | restatement
PREFACE

This thesis has been conducted during an internship at Deloitte Arnhem from February 2017 up to and including June 2017. Completing this Master thesis is the final stage of my Master’s degree in Accounting and Control at Radboud University Nijmegen.

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I would like to say that I am looking forward to receiving my Master’s degree in Accounting and Control and to start my career at Deloitte Arnhem in the near future.

Janne Gellings
Nijmegen, June 2017
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I. INTRODUCTION

In March 2017, the Financial Reporting Council (FRC) – UK’s independent regulator responsible for promoting high quality corporate governance and reporting to foster investment – released a report focused on the firms’ audit quality control procedures and other audit quality initiatives (FRC, 2017). As noted in the introduction of this report (p. 6) a key focus of the FRC is to “promote continuous improvement in audit quality,” with the goal of ensuring that “by 2019, at least 90% of FTSE 350 audits reviewed by the AQR team will be assessed as requiring no more than limited improvements”. In this they say firms should continue to ensure that audit quality remains at the forefront of their agendas to continually drive further improvement.

Auditing standards require auditors to plan and perform audits to obtain reasonable assurance about whether the financial statements are free of material misstatements and to express an opinion about the fair presentation of the financial statements (PSAOB 2010a). The degree to which financial statement users can rely on those audit opinions depends on the quality of the audit performed. In the literature several determinants of this audit quality are discussed such as Jung et al., 2016; Christensen et al., 2015; Asthana, 2014; and Lim and Tan, 2008. One of these determinants is the audit fee. In competitive audit markets, audit fees are the costs associated with the level of audit effort and audit risk (Simunic, 1980, Choi et al., 2008). In empirical research models for the estimation of audit fees, the audit fee is mainly a function of the auditor's costs in performing the audit, expenses related to other relevant units, expected litigation risks and normal profit – called the normal audit fees (Asthana and Boone, 2012; Seetharaman et al., 2002). Besides these the actual audit fees depends often on the specific relationship between auditor and client – called the abnormal audit fees (Higgs and Skantz, 2006; Choi et al., 2010). When audit fees are above normal levels, auditors may have the incentive to compromise their independence, which impairs audit quality (Dye, 1991; Choi et al., 2010). Alternatively, high audit fees may reflect the additional audit effort required to maintain the firm’s reputation or to protect auditors from litigation risk (Francis and Kirshnan, 1999), both of which are positively related to audit quality. Blankley et al. (2012) and Higgs and Skantz (2006) find also a positive and significant association between audit fees and audit quality. In sum, prior studies offer mixed results on the relationship between the height of audit fees and audit quality.

Besides the audit fee, the mandatory adoption of IFRS in 2005 and the level of enforcement within a country could be determinants of audit quality. To restore trust and to improve quality of financial reporting the EU Parliament passed on 19 July 2002 a regulation that requires all
companies listed in the EU to adopt International Financial Reporting Standards (IFRS) for the fiscal years starting after 1 January 2005. Regulators expect that the use of IFRS improves the comparability and transparency of financial statements, increases the quality of financial reporting, and hence benefit investors (EC Regulation No. 1606/2002). The mandatory IFRS adoption can mean several things for the audit quality. For example, IFRS increases audit complexity (Liu, 2011) and requires more professional judgment from auditors (Barth et al., 2008). Therefore, audit quality can decrease because the audit firm may not have enough resources to maintain high audit quality. However, in existing literature it has been argued that IFRS adoption is associated with a lower cost of equity capital (e.g. Daske et al., 2013) and higher market liquidity (e.g. Leuz and Verrecchia, 2000); consequently, more investors are attracted. In the studies of IFRS, the effects are not homogenous and are linked to the national institutional settings for financial reporting (Brown, 2011; Brüggemann et al., 2013). Because of substantial differences in institutional settings the interpretation and use of IFRS may differ between countries (Pope and McLeay, 2011). Ball (2006), among others, argues that uniform standards alone are unlikely to produce uniform financial reporting, which is one of the goals of IFRS. One of the institutional setting that influence the effectiveness of financial reporting standards like IFRS is the level of enforcement within a country (Preiato et al., 2015; Brown et al., 2014; Christensen et al., 2013; Hitz et al; 2012). By enforcement, this study refers to “the government appointed bodies or institutions which get the task of supervising and enforcing listed companies’ compliance with mandatory accounting standards” (Brown et al., 2014). The presence of such bodies or institutions effect the reporting incentives which determines, among others, the audit quality. Christensen et al. (2015), Daske et al. (2008) and Glaum et al. (2013) argue that the benefits of adopting accounting standards such as IFRS occur only in countries where firms have incentives to be transparent and where enforcement is strong. In sum, the determinants of audit quality discussed in this study will be audit fees, mandatory IFRS adoption and the level of enforcement.

Furthermore, existing literature suggest IFRS and the level of enforcement could influence the audit fee – the audit fee is seen as the dependent variable in these studies (Kim et al., 2012; Shan and Troshani, 2016; Christensen et al., 2016.). IFRS is a principle-based accounting standard that outlines accounting policies. However, how each principle should be implemented by a firm is not described in detail. This triggers managerial discretion and subjectivity (Ahmed et al., 2013). Consequently, auditors’ professional judgment about the extent and effects of managers’ discretion is required and auditors must make additional efforts. In addition, because of IFRS the auditor has to examine a wider range of accounting choices
and dealing with increased complexity (Kim et al., 2012). As a result, audit fees increased to reflect these additional efforts of auditors after the adoption of IFRS. With regard to the association between the level of enforcement within a country and the audit fee, Menon and Williams (1994) suggest that the audit fee depends, among others, upon the auditor litigation risk. The level of this type of risk depends on the institutional settings within the country, including the level of enforcement. Therefore the authors argue that with a higher level of enforcement the litigation risk of the auditor is higher which increases the audit fee. However, empirical evidence linking this litigation risk to audit fees is weak.

Concluding on these findings in existing literature, this study examines if the audit fee is the mechanism (i.e. mediator) that underlies the linkage between IFRS and the level of enforcement on one hand and audit quality on the other hand. Therefore the following research question is set up:

**Is the relationship between mandatory IFRS adoption and the level of enforcement within a country on one hand and audit quality on the other hand mediated by the audit fee?**

Despite IFRS was already introduced in 2005, this study still fills an important gap in the literature. Namely, by recognizing the “two-tier role” of the audit fee (as dependent variable for audit quality, and independent variable for IFRS adoption and the level of enforcement), this study provide the first evidence by documenting in what extent the relationship between IFRS and the level of enforcement on one hand, and audit quality on the other hand, is mediated by the audit fee. By doing this some relationships in earlier researches can be explained.

The second contribution to existing literature is that the proxies used for enforcement in this study are based on the framework set up by Brown et al. (2014) and identify country differences in, firstly, the environment in which auditors perform their role and, secondly, the activities of national enforcement bodies in relation to enhancing compliance with accounting standards. Earlier proxies for enforcement largely relate to countries’ legal systems and institutions (e.g. Daske et al., 2008; Byard et al., 2011). For instance, “rule of law” proxies provided by La Porta et al. (1998) have been widely used because they are available for a large number of countries and includes a number of factors that capture at least some country differences in the area of financial reporting. However, the proxies focus on elements of the legal system or securities law and thus may not capture enforcement in relation to accounting standards as such. In addition, this study provide a test of the Brown et al. (2014) proxies for accounting enforcement
and in doing so this study shows the effectiveness of using these proxies, one of the main goals of Brown et al. (2014).

The remainder of this study is organized as follows. Section II provides further background to the concepts of audit quality, audit fees, IFRS and the level of enforcement more explicitly. During this, it set up the hypotheses. Section III shows the research design, the test of hypotheses, and the sample selection. Section IV presents the empirical results together with additional tests. Section V concludes this study.

II. THEORY AND HYPOTHESES

Audit quality

Audit quality is a common researched topic in existing literature. In this there is no single accepted definition or measurement of audit quality. Much of the audit quality literature derives from DeAngelo’s (1981) frequently cited definition of audit quality as “the probability that an auditor will both discover a breach or misstatement in the accounting systems or financial statements, and, further, report the breach.” This definition has two elements: auditor expertise, which determines the likelihood that an auditor discovers misstatements in the financial statements, and auditor objectivity/independence, which is related to the likelihood that an auditor will correct these misstatements when it is discovered (Knechel, 2016). However, Francis (2004) and Knechel et al. (2009) argue that this definition is based on ‘market perceptions’ of quality rather than a grounded and measurable aspect of actual audit quality. Different perspectives have different meanings about what quality is. This view is supported by Hopkins (1997) who found that there are fundamental differences in the perceptions of audit quality between providers and their clients. These different exceptions about what audit quality is, is clearly reflected in the existing literature where a variety of financial reporting and other audit related outcome measures are used as proxies for audit quality. These proxies include, among others, financial statement restatements, going-concern opinions, lawsuits against auditors, level of abnormal accruals, auditor firm size and audit fee (e.g. Lambert et al., 2016; Francis and Michas, 2012; Stanly and DeZoort, 2007; Carcello and Nagy, 2004). In the following sections the most common proxies used for measuring audit quality are discussed.

One stream of auditing research examines the effect of audit office size on audit quality (e.g. Becker et al., 1998; Gosh and Moon, 2005; Lawrence et al., 2011). Francis and Yu (2009) argue that larger audit firms have more expertise and larger engagement hours. This provides better opportunities to the auditors in detecting material misstatements in the client’s financial
statements. They conclude larger audit firms are more likely to detect and report material problems in the financial statements and also are more likely to require clients to correct these problems before issuing an opinion. So larger audit firms provide better audit quality to their client according to Francis and Yu (2009). Choi et al. (2010) adds to this that large audit firms are less likely to be economically dependent on one specific client and are, therefore, less likely being sensitive to the pressures from this client. They conclude that audit quality of large audit firms is higher. Francis (2004) also find a significant positive association between audit firm size and audit quality in which they report that Big 4 office size (PwC, Deloitte, KPMG, and Ernst & Young) is associated with fewer restatements.

Industry specialization has been argued to improve audit quality (e.g. Owhoso et al., 2002; Dunn and Mayhew, 2004; Choi et al. 2010). These types of studies focuses on the auditor’s knowledge and experience in the industry of the client. Hogan and Jeter (1999) adds to this that auditors specialize as a means of improving their quality, so firms are switching to the auditor perceived as offering higher quality services.

The number of restatements or the issuance of going-concern opinions are other proxies used for measuring audit quality (e.g. Francis and Yu, 2009). In this, the researchers argue that the higher these numbers, the higher the audit quality because the auditor finds misstatements and report these. But according to Francis et al. (2013), “a material restatement is strongly suggestive that the original audit of those financial statements was of low quality.” However, Myers et al. (2003) doubt this proxy used for measuring audit quality because investigation on restatements and going-concern opinions only relates to a few extreme situations and therefore cannot explain differences for a broad cross-section of firms.

Client’s earnings quality is another much used proxy for audit quality (Higgs and Skantz, 2006; Lim and Tan, 2008; Davis et al., 2009; Francis and Yu, 2009; Choi et al., 2012; Reichelt and Wang, 2010). The two most common types are discretionary accruals and propensity to meet or beat earnings expectations. Accruals can be defined as the revenues and costs that after accumulation result in a difference between the profit of an entity and its cash flows (Higgs and Skantz, 2006). Discretionary accruals are accruals that are formed due to management decisions and not due to normal operation activities. Thereby, the manager can use this to manipulate reported income: earnings management is taken place. Balsam et al. (2003) and Krishnan (2003) finds that an increase in discretionary accruals is associated with lower audit quality because there is a higher likelihood of earnings management.

A contemporary paper from DeFond and Zhang (2014) argues that “no single category paints a complete picture of audit quality” and recommend that “when possible, researchers
use multiple proxies form different categories to take advantage of their strengths and attenuate their weaknesses." Therefore, this study will use a combination of proxies including ex-ante (client’s earnings quality) and ex-post (receiving a restatement, comment letter, or going-concern opinion) measures of audit quality. Which proxies are used and how these are measured is discussed in the section IV of this study.

**Audit fees and audit quality**

As mentioned in the introduction, the audit fee influences the audit quality. The model of audit prices designed by Simunic (1980) and many others later (e.g. Simunic and Stein, 1996, Choi et al., 2008) argues that an auditor’s cost function is based on two related components: the level of audit effort, and the expected cost of auditor’s client-based business risk. The level of audit effort is necessary in order to gather enough evidence concerning the quality of the financial statements and is positive related with the audit fee. The client-based business risk is also positively related with the audit fee (Francis and Simon, 1987) through the higher effort of audit in case of such a risk. This is because, in the case of a possibility of bankruptcy for instance, there is a larger possibility of legal action against the client and indirectly against the auditor. Audit effort increase to prevent such a situation from happening and to avoid any lawsuits in the future (Arens et al., 2012).

Extensive research examines the relationship between audit fee and audit quality which show mixed results. According to Hoitash et al. (2007), McMeeking et al. (2006) and Chaney et al. (2004) higher audit fees increase audit quality. They argue that if more fees are paid to the auditors they might increase their efforts and consequently the audit quality will increase. On the other hand, when auditors receive higher fees, the audit firm will become more dependent on the clients, which can be negatively related with audit quality. In this type of studies the actual audit fee is often divided into two parts: normal audit fees that are rationally expected given the client’s size, risk, and complexity, and abnormal audit fees, or those above (or below) normal audit fees (Eshleman and Guo, 2014). Higgs and Skantz (2006) and Choi et al. (2010) argues that these abnormal audit fees represent the specific relationship between auditor and client. The higher abnormal audit fees could lead to fear of losing clients and therefore create incentives to don’t report any misstatement on the financial statements and hold the clients satisfied; leads to lower audit quality (Dye, 1991).

Thus, prior studies show mixed results on the relationship between audit quality and audit fees. However, because this study focus on the total amount of audit fees (including the normal
audit fees), the possible negative effect of abnormal audit fees on audit quality should have little or no influence and the following hypothesis is set up:

\[ H1. \] Audit fee positively influences audit quality.

**IFRS and audit quality**

In capital markets accounting standards are important because they help resolve the well-known agency problem. Broadly speaking, insiders – the firm’s controllers or managers – are better informed than outsiders about the firm’s future performance and the investment opportunities. To grow as a firm, the managers may need access more capital, which is coming from the outsiders – the investors. The investors don’t know as much as the managers, if they will act in their own self-interest for instance. Armed with this knowledge the firm’s cost of capital increases: for reflecting the cost of not being as well informed as the managers, investors will invest less. Accounting standards are a relatively low-cost solution to this serious agency problem because they underpin how capital is allocated and performance is monitored and rewarded (Brown, 2011). However, believing the experts, inadequate accounting standards were at least partly responsible for the frauds happened by Enron and Worldcom (Selling, 2013). Consequently, The European Union (EU) Parliament passed on 19 July 2002 a regulation that requires all companies listed in the EU to adopt International Financial Reporting Standards (IFRS) for the fiscal years starting after 1 January 2005. Regulators expect that the use of IFRS improves the comparability and transparency of financial statements, increases the quality of financial reporting, and hence benefit investors (EC Regulation No. 1606/2002). This because IFRS provides users with additional disclosure requirements and specified measurement and recognition rules that directly impact the quality of accounting numbers (Daske, 2006). The adoption of IFRS has stimulated empirical research that investigates the financial reporting and capital market effects associated with an accounting regime change like IFRS.

Adopting IFRS has brought benefits in the form of higher quality financial statements, argued in a number of studies. For example, Barth et al. (2008) find that firms adopting IFRS have less earnings management, exhibit more timely loss recognitions, and provide more value relevance – all qualified as higher quality financial statements. This is based on the fact that the new standards fills in gaps in local accounting regulations, by providing recognition and measurement rules for certain issues that had not been addressed in some countries. In addition,
IFRS is considered to require disclosure of more information, which decreases the management discretion.

Another benefit of adopting IFRS is the elimination of barriers to cross-border investing. In this, financial analysts are important information intermediaries because they provide investors with future earnings forecasts (Beaver, 1981), a characteristic of the agency theory. The sources information analysts use to make such future earnings forecasts are mainly financial statements. Because differences in accounting standards make it difficult for financial analysts to compare the future earnings of different firms, IFRS should make it easier for them by providing financial statements that are more transparent and comparable in terms of disclosure and measurement rules. Empirical studies examining the relationship between IFRS adoption and analysts’ earnings forecast accuracy finds generally higher forecast accuracy subsequent to IFRS adoption (e.g., Horton et al., 2013; Jansson et al., 2012; Kim & Shi, 2012). Byard et al., (2011) and Stecher & Suijs (2012) add to this that IFRS adoption is beneficial because it enhances the information environment of analysts. However, Byard et al. (2011) and Jiao et al. (2012) finds that these results in analysts’ accuracy differ according to the countries’ enforcement regimes and the extent to which IFRS differ from the earlier accounting standards.

The narrative review of the effects of IFRS adoption generally shows less variability in the findings: most studies report positive effects of mandatory IFRS adoption on the audit quality and analysts’ earnings accuracy. Therefore, the following hypothesis for empirical testing is set up:

\[ \text{H2. Mandatory IFRS adoption positively influences audit quality.} \]

**Enforcement and audit quality**

The effectiveness of IFRS adoption may be hampered by differences in the institutional setting in which financial reporting occurs. Several recent studies show the limited role of accounting standards in determining reporting quality and highlight the importance of firm’s reporting incentives (e.g. Ball et al., 2003; Leuz, 2003, Christensen et al., 2015; Wieczynska, 2015). In this they argue that the adoption of certain accounting standards involves considerable judgment and the use of private information. Therefore, firms keep having a certain degree of discretion. The use of this discretion is dependent on the reporting incentives which are shaped by many factors like the legal institutions within a country and the operating characteristics of a firm. So IFRS is only one of the determinants of overall audit quality. Because other determinants of quality (such as legal and political systems, incentives, tax) will
differ across countries, audit quality will also differ across countries following IFRS adoption. This study focuses on an important institutional factor that has been shown to significantly affect the effectiveness of accounting standards: the level of enforcement within a country (e.g., Gibber et al., 2015; Wieczynska, 2015; Bens et al., 2015). The primary role auditors have is providing advice on interpretation and implementation of accounting standards and promoting compliance with them. There have to be government bodies or institutions with specific responsibility for the enforcement of accounting standards, which involves decisions about this interpretation and may involve supplying implementation guidance. An example of such institution is The Dutch Authority for the Financial Markets (AFM) which is responsible for supervising the operation of the financial markets. The definition of enforcement in this study is the one used by Brown et al. (2014): “enforcement is the activities undertaken by the government appointed bodies or institutions which get the task of supervising and enforcing listed companies’ compliance with mandatory accounting standards”. In this, the focus is on the activities of security market regulators with respect to monitoring and reviewing company financial statements and sanctioning companies for non-compliance.

Studies use a range of proxies to identify differences in the level of enforcement between countries. The most widely-used proxies focus on the legal systems and the extent of legal protection of shareholder and creditor rights such as judicial efficiency, rule of law, and corruption, as provided by La Porta et al. (1998). This is a broad classification that also reflects differences in other aspects than financial reporting, such as financing systems. Another range of studies makes a distinction between public enforcement and private enforcement (e.g., Porta et al., 2006; Jackson and Roe, 2009), in which they define enforcement as activities aimed at ensuring compliance with a rule or regulation. The measurement of enforcement used in all of these studies do not consider enforcement of accounting standards in specific; it is more an overall measure using country characteristics. Nevertheless, many studies conclude that ‘enforcement’ is an important factor in explaining various financial reporting outcomes, including audit quality. This missing link is the reason why this study focuses on proxies which are developed more recently. These studies measure the level of enforcement by regulators to promote compliance with accounting standards like IFRS (Hitz et al., 2012; Chirstensen et al., 2013; and Preiato et al., 2013). Security regulation is a more recent proxy used for the level of enforcement. Chirstensen et al. (2016) examine the capital-market effects of changes in securities regulation in the European Union. In this, they find a significant increase in market liquidity, but stronger effects in countries with stricter implementation and traditionally more stringent securities regulation. Bens et al. (2015) focus on the role of the Securities and
Exchange Commission (SEC) in monitoring fair value disclosures and find that the periods after the fair value comment letters, the fair value assets and measures of uncertainty are significantly reduced. Another study that focus on the impact of SEC is the study of Nicholls (2016), which finds that an investigation of SEC leads to changes in the cost of equity capital for firms.

Moreover, prior studies typically focus on the effect of security regulation on capital market outcomes (e.g. Christensen et al., 2016; Nicholls, 2016; Silvers, 2016) or the accounting quality (Bens et al., 2015), rather than the audit quality. The following hypothesis is set up to test the level of enforcement on audit quality.

**H3.** The level of enforcement within a country positively influences audit quality.

**Audit fees as mediator**

In the previous sections of this chapter, the possible determinants of audit quality are discussed, namely the audit fee, mandatory IFRS adoption and the level of enforcement within a country – all seen as the independent variable of audit quality in the hypotheses developed so far. However, in existing literature the audit fee is also broadly discussed as the dependent one (e.g. Seetharaman et al., 2002; Choi et al., 2009). This study examines if mandatory IFRS adoption and the level of enforcement within a country are one of the variables which influences audit fees.

Regarding the association between IFRS and audit fee, prior studies which examined the impact of mandated shifts in accounting and corporate governance regulation on the audit function find the audit fees are significant higher after a shift (Griffin et al., 2009; Ghosh and Pawlewickx, 2009; Charles et al., 2010). They attribute these higher audit fees to the increase of the earlier mentioned components: audit effort and audit risk. In the case of IFRS adoption there could be an increase in costs because of the greater effort, knowledge, and information systems needed to implement new standards. These increased audit effort is driven by two main reasons according to DeGeorge et al. (2012). First, auditors have to become knowledgeable about the new standards so they can assess whether the financial statements are in line with these standards. Auditors are likely to recover these cost through increases in the audit fees in the year of IFRS adoption. In the years after, continued higher cost arise if IFRS asks for more audit effort relative to existing local standards like GAAP. Second, auditors face more risks due to IFRS adoption in terms of chances of materially misstated financial statements (Love and Eickemeyer, 2009) and the litigation risk associated with this materially misstated financial
statements (Diehl, 2010). For managing these risks, it is likely auditors will increase the audit effort. Based on this existing literature, the fourth hypothesis is stated as follows.

\[ H4a. \text{ Mandatory IFRS adoption positively influences audit fee.} \]

Because now mandatory IFRS adoption could have an impact on audit quality, measured by testing hypothesis 2, but also on the audit fee, measured by testing the hypothesis above, there is a chance the audit fee strengthens the relationship between the variables, if the audit fee by themselves has a positive effect on audit quality, measured by testing hypothesis 1. Therefore, to test this mediation effect, this study set up the following hypothesis.

\[ H4b. \text{ Audit fee mediates the relationship between mandatory IFRS adoption and audit quality.} \]

Regarding the association between the level of enforcement within a country and audit fee, the central hypothesis in the literature is that differences in legal regimes result in fee differentials; audit firms increase fees to cover expected litigation costs from countries with higher litigation risk. For instance, Seetharaman et al. (2012) argues that UK firms that are listed on the US stock exchange pay higher fees than those that cross-list in other countries with lower litigation risk and those that do not cross-list. Choi et al. (2008; 2009) finds that fee differences are increasing in the difference between the cross-listing and home country legal environment. In this Choi et al. (2008) argue that “national legal environments are likely to influence clients’ reporting incentives and auditors’ assessments of audit risks, which in turn affect the auditors’ effort choices and audit fees” (p. 58). Moreover, prior studies investigating in the association between enforcement and audit fee suggest there should be a positive association, due to the higher litigation risk and audit effort. Based on this, the fifth hypothesis is states as follows.

\[ H5a. \text{ The level of enforcement within a country positively influences audit fee.} \]

Because now the level of enforcement within a country could have an impact on audit quality, measured by testing hypothesis 3, but also on audit fee, measured by testing the hypothesis above, there is a chance the audit fee strengthens (or weakens) the relationship between the two variables, if the audit fee by themselves has a positive effect on audit quality, measured by testing the first hypothesis. Therefore, to test this mediation effect, this study set up the following, and last, hypothesis.
**H5b.** Audit fee mediates the relationship between the level of enforcement within a country and audit quality.

Before going to the next section there have to be mentioned that the audit fee is not available for all the firms before the year of 2008 – firms have to report the audit fee in public only from 2008 and later (De Accountant, 2009), but there are a handful of firms who did earlier. Therefore, regarding the relationship between IFRS and enforcement on audit quality with the audit fee as mediator, this study is an explorative one. This implies that the results regarding this relationship are not intended to provide conclusive evidence, but helps the research field to have a better understanding of the relationship: this study is willing to change the direction of the relationship between IFRS and enforcement on audit quality by giving new insights.

**III. RESEARCH METHOD AND SAMPLE**

*The research model*

Figure 1 summarizes the research hypotheses in the research model of this study. Here it becomes more clearly the audit fee is tested as the independent variable for audit quality, but also as the dependent variable for mandatory IFRS adoption and the level of enforcement within a country, and thereby could be a mediator.

*Figure 1: The research model*
Measuring the variables

Dependent variable: audit quality using discretionary accruals (DACC)

Consistent with existing research, this study will use client’s earnings quality as a proxy for audit quality. The most common proxy used in prior research is discretionary accruals (e.g. Francis and Yu, 2009; Choi et al., 2010, 2012; Reichelt and Wang, 2010). The discretionary total accruals are calculated using the cross-sectional modified version of the Jones model (Jones, 1991). In this analysis, the model is a two-stage regression model which means results from the first part of the analysis are used into the next stage to get the needed estimate. The first part of the model can be represented as follows:

Total Net Accruals = Net Income Before Extra Ordinary Items – Net Cash Flow From Operating Activities

Once this is calculated the following model needs to be regressed:

\[ \frac{TN_A}{ATA} = \beta_0 + \beta_1 \left( \frac{1}{ATA} \right) + \beta_2 \left( \frac{\DeltaREC}{ATA} \right) + \beta_3 \left( \frac{GPPE}{ATA} \right) + \epsilon \]

where
- \( TN_A \) = total net accruals
- \( ATA \) = average total assets
- \( \Delta SALE \) = change in sales
- \( \Delta REC \) = change in accounts receivable
- \( GPPE \) = gross property plant & equipment

To estimate the individual firm’s nondiscretionary accruals (NDA), the cross-sectional coefficients (calculated by running the regression equation above) along with a specific firm’s data are used in the following calculation:

\[ \frac{NDA}{ATA} = \beta_0 + \beta_1 \left( \frac{1}{ATA} \right) + \beta_2 (\Delta SALE - \Delta REC / ATA) + \beta_3 (GPPE / ATA) + \epsilon \]

where
- \( NDA \) = total nondiscretionary accruals

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1 Be aware this model is regressed for each industry (based on the ICB codes), where each industry has to comply at least ten firms.
The total discretionary accruals is the difference between the individual firm’s scales total net accruals and its estimated total nondiscretionary accrual amount:

\[ \text{DACC} = \frac{T\text{NA}}{\text{ATA}} - \frac{N\text{DA}}{\text{ATA}} \]

**Dependent variable: audit quality using restatements (RESTAT)**

However, in a recent paper, DeFond and Zhang (2014) concludes that using only discretionary accruals as proxy for audit quality is not enough: “no single category paints a complete picture of audit quality … when possible, researchers use multiple proxies from different categories to take advantage of their strengths and attenuate their weaknesses” (p. 276). To compensate for the potential weakness of using only DACC, this study also used an ex-post measure of audit quality. A dichotomous variable RESTAT is added with value of one if the firm restated the current fiscal year financial statements and zero otherwise. This proxy is based on Francis et al. (2013, p. 1627) who argue that “a material restatement of originally audited financial statements is strongly suggestive that the original audit of those financial statement was of low quality”. So higher audit quality should be negatively associated with the probability of a restatement.

The use of those two variables for measuring audit quality could create a new relationship, namely the influence of DACC on the probability of a restatement. Dechow et al. (2011) analyzed the characteristics of financial misstatements and developed a model to predict such misstatements. “The output of this is a scaled probability (F-score) that can be used as a red flag of the likelihood of a misstatement (p. 18)” . In this they found that discretionary accruals (also measured by the Jones model) is a determinant of misstatements. Due to time issues this study does not include this relationship in the regression analysis. Nevertheless, this relationship is used for the robustness checks (Section IV).

Because discretionary accruals and restatement are two different types of variables – ratio and categorical, respectively – it is not possible to combine those two variables into one. Therefore, this study performed two different types of regressions in section IV, namely an OLS regression for measuring the variable discretionary accruals and a logistic regression for measuring the variable restatement.
**Mediating variable: audit fee (LNFEE)**

In this study, audit fee is used both as the independent variable and the dependent variable. It is expected the audit fee contributes to higher audit quality (1) and is influenced by mandatory IFRS adoption and the level of enforcement (2). The total amount of paid audit fee within a country (LNFEE) is calculated by the natural logarithm of the total fees paid to the external auditor for auditing the fiscal year’s financial statements.

**Independent variable: mandatory IFRS adoption (IFRS)**

One of the primary independent variables is the mandatory IFRS adoption. In this study only firms who adopt IFRS mandatory are included, because voluntary adoption of IFRS drives other motivations and therefore can result in other outcomes (Daske et al., 2008; Barth et al., 2008). Doing so, firms who adopt IFRS before or after the year 2005 are excluded. So at the end IFRS is a dichotomous variable that is equal to 1 if the fiscal year ends after January, 2005; and equals zero otherwise.

**Independent variable: the level of enforcement within a country (ENFORCE)**

The other independent variable is the level of enforcement within a country. To focus explicitly on factors that affect the auditing of financial statements and the enforcement of compliance with each country’s accounting standards around the time of IFRS adoption, this study used the index of financial reporting enforcement constructed by Brown et al. (2014). This index measures the degree of accounting enforcement activity by independent enforcement bodies and is constructed based on publicly available data provided by the International Federation of Accountants (IFAC), the World Bank and the national securities regulators. In this they measure the quality of the audit environment by considering the presence or absence of a number of factors that are likely to affect the skills and training of auditors and their incentives to carry out their role effectively. These measures are set equal to the 2002 score and the 2008 score for pre and post IFRS adoption observations respectively and the 2005 score for the year of IFRS adoption. The variable ranges from 4 to 56, with higher scores for higher quality of total accounting enforcement. Appendix 1 provides the comparison of enforcement scores of the countries adopted IFRS in 2005.

**Control variables**

This study includes control variables to overcome heteroscedasticity problems. In this study there have to control for two dependent variables: audit quality and audit fee. Because in prior
studies there are various equal control variables used for these two variables (e.g. Lim & Tan, 2008; Bell et al. 2015; Christensen et al., 2015; Averhals et al., 2015), this study will use the same control variables by measuring both audit quality and audit fee, namely size, leverage, operating cash flows, and whether a company is audited by a Big 4 auditor or not.

The first control variable is size where many prior studies show a positive association between audit quality and firm size (e.g. Butler et al., 2004; Geiger and North; 2006; Asthana and Boone; 2012). Also the audit fee may be positively influenced by the firm size due to the need for more time, resources and effort in preparing, analyzing and testing the company information before an audit opinion can be issued (e.g. Chung and Narasimhan, 2002; Cobbin, 2002). Also, it is likely that non-audit services are higher for large-sized firms influencing the audit fee. The measure for size is the logarithm of total assets (LNASSETS). The natural logarithm is used because, for example, economies of scale may reduce audit work.

Leverage, measured as the ratio of total liabilities to total equity, may also be associated with audit quality and audit fee. Several studies have included leverage ratios (e.g. Ali et al., 2004) in which they argue that firms in financial distress may try to manage financial statements which increases discretionary accruals and therefore lowers audit quality. On the other hand, firms in financial distress wants to prevent litigation risks and penalties, leading to higher audit quality. Bell et al. (2001), among others, shows that audit fee is positive associated with the leverage of a firm, due to the higher risk auditors take by auditing such firms which are in financial distress.

Prior research found negative associations between earnings management (measured by discretionary accruals) and cash flow from operations (CFFO), which indicates a positive association between audit quality and CFFO (e.g. Frankel et al., 2002; Lim and Tan, 2007). In this CFFO is cash flow from operations deflated by total assets.

The last control variable used for both audit quality and audit fee is a dummy which equals 1 when the company is audited by a Big 4 auditor (Deloitte, Ernst & Young, KMPG, and PWC) and zero otherwise. Prior studies suggest Big 4 audit firms contribute to a higher level of audit quality measuring discretionary accruals (e.g. Becker et al., 1998; Francis and Yu, 2009), where they argue Big 4 audit firms have more resources regarding expertise and knowledge. Studies which examines the association between auditor firm size and audit fees finds also a positive association between the two (e.g. Hoitash et al., 2007).

The dependent and test variables discussed above and control variables used in the regression analyses are summarized in Table 1.
Table 1: Variables definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main variables</strong></td>
<td></td>
</tr>
<tr>
<td>DACC</td>
<td>Discretionary total accruals; calculated using the cross-sectional modified version of the Jones model (Jones, 1991)</td>
</tr>
<tr>
<td>RESTAT</td>
<td>A dichotomous variable equal to one if the firm restated the current fiscal year financial statements subsequently; and zero otherwise.</td>
</tr>
<tr>
<td>LNFEE</td>
<td>Natural logarithm of fees paid.</td>
</tr>
<tr>
<td>IFRS</td>
<td>A dichotomous variable equal to 1 if the fiscal year ends after January, 2005; and equals zero otherwise.</td>
</tr>
<tr>
<td>ENFORCE</td>
<td>A variable ranges from 4 to 56, with higher scores for higher quality of total accounting enforcement.</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
</tr>
<tr>
<td>LNASSETS</td>
<td>Natural logarithm of entity’s total assets.</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>The ratio of total liabilities to total equity.</td>
</tr>
<tr>
<td>CFFO</td>
<td>Cash flow from operations deflated by total assets.</td>
</tr>
<tr>
<td>BIG4</td>
<td>An indicator variable equal to one if the auditor is one of the Big 4 auditor (Deloitte, Ernst &amp; Young, KPMG, and PWC); and zero otherwise.</td>
</tr>
</tbody>
</table>

This table shows the variables (together with a definition) used for testing the hypotheses.

Test of hypotheses

To test the first hypothesis, the following two regressions are performed with DACC and RESTAT as the dependent variables and with the audit fee measure along with several controls from extant research as independent variables. As already mentioned, the audit quality is measured based on two variables, namely the occurrence of a restatement and the level of discretionary accruals. Therefore there are two different regressions performed: a logistic regression and an OLS regression. In both regressions, the coefficient LNFEE is expected to be negative: the higher the audit fee, the higher audit quality, which means a lower probability of any restatement and a lower level of discretionary accruals.

\[
\text{RESTAT} = \alpha_0 + \beta_1 \text{LNFEE} + \beta_2 \text{LNASSETS} + \beta_3 \text{LEVERAGE} + \beta_4 \text{CFFO} + \beta_5 \text{BIG4} + \varepsilon \quad (1)
\]

\[
\text{DACC} = \alpha_0 + \beta_1 \text{LNFEE} + \beta_2 \text{LNASSETS} + \beta_3 \text{LEVERAGE} + \beta_4 \text{CFFO} + \beta_5 \text{BIG4} + \varepsilon \quad (2)
\]
To test the second and third hypotheses, the following two regressions are performed. In this, the coefficients of IFRS and ENFORCE are expected to be negative: the adoption of mandatory IFRS or a higher level of enforcement will lead to higher audit quality, which is the case if the probability of any restatement and the discretionary accruals are low.

\[
\text{RESTAT} = \alpha_0 + \beta_1 \text{IFRS} + \beta_2 \text{ENFORCE} + \beta_3 \text{LNASSETS} + \beta_4 \text{LEVERAGE} + \\
\beta_5 \text{CFFO} + \beta_6 \text{BIG4} + \epsilon
\]  

\[
\text{DACC} = \alpha_0 + \beta_1 \text{IFRS} + \beta_2 \text{ENFORCE} + \beta_3 \text{LNASSETS} + \beta_4 \text{LEVERAGE} + \\
\beta_5 \text{CFFO} + \beta_6 \text{BIG4} + \epsilon
\]

For testing if the audit fee is a mediator of the relationship between IFRS and the level of enforcement on one hand and the audit quality on the other, first hypothesis 4a and 5a should be tested. This will answer the question if IFRS and the level of enforcement within a country, in the first place, have a significant effect on the audit fee. Therefore, this study set up the following regression model, with the expectation that the coefficients of IFRS and ENFORCE should be positive (adoption of mandatory IFRS and the level of enforcement within a country will lead to higher audit fees).

\[
\text{LNFEE} = \alpha_0 + \beta_1 \text{IFRS} + \beta_2 \text{ENFORCE} + \beta_3 \text{LNASSETS} + \beta_4 \text{LEVERAGE} + \\
\beta_5 \text{CFFO} + \beta_6 \text{BIG4} + \epsilon
\]

Finally, the regression models can be tested which will show the audit fee is a possible mediator. If this is the case, it is expected the coefficients of IFRS and ENFORCE will show a weaker effect than in the third and fourth regression models, yet still negative and significant: adding LNFEE as an independent variable eliminates the indirect effect of the adoption of mandatory IFRS and the level of enforcement within a country on audit quality, due to the audit fee within these variables.

\[
\text{RESTAT} = \alpha_0 + \beta_1 \text{IFRS} + \beta_2 \text{ENFORCE} + \beta_3 \text{LNFEE} + \beta_4 \text{LNASSETS} + \\
\beta_5 \text{LEVERAGE} + \beta_6 \text{CFFO} + \beta_7 \text{BIG4} + \epsilon
\]
\[ \text{DACC} = \alpha_0 + \beta_1 \text{IFRS} + \beta_2 \text{ENFORCE} + \beta_3 \text{LNFEE} + \beta_4 \text{LNASSETS} + \beta_5 \text{LEVERAGE} + \beta_6 \text{CFFO} + \beta_7 \text{BIG4} + \varepsilon \] (7)

**Sample**

To analyze the effect of IFRS and security regulation on audit quality, there is a sample used of European listed firms surrounding the five years that IFRS was introduced.\(^2\) This sample will be obtained from Thomson Reuters Datastream and Eikon. The Datastream database will be used concerning the annuals financial information, e.g. balance sheet and income statement numbers, and the Eikon database will be used for the audit fee data. This study excluded financial institutions (ICB 8000-8999) and energy (ICB 0001-0589) and mining firms (ICB 1750-1780) since they have deviating regulatory frameworks. Also firms who adopt IFRS earlier than 2005, what was permitted by the IASB, are excluded from the sample because prior studies finds that the effects of IFRS adoption differs between mandatory and voluntary adoption (e.g. Daske et al., 2008). This holds also for firms who adopt IFRS after 2005: for this firms it seems adoption of IFRS wasn’t mandated in this year. This left us with 2,479 firms, leading to 10,379 observation years. Table 2 summarizes the sample selection procedure.

<table>
<thead>
<tr>
<th>Table 2: Sample Selection Procedure</th>
<th>in observation years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of listed firms – from which (financial) data exists</td>
<td>6,849 26,034</td>
</tr>
<tr>
<td>Minus financial institutions and energy and mining firms</td>
<td>(-) 1,629 (-) 5,489</td>
</tr>
<tr>
<td>Minus firms who did not adopted IFRS in the year 2005</td>
<td>(-) 2,467 (-) 10,136</td>
</tr>
<tr>
<td>Final sample (with audit fee missings)</td>
<td>2,478 10,379</td>
</tr>
<tr>
<td>Final sample (without audit fee missings)</td>
<td>1,451 4,476</td>
</tr>
</tbody>
</table>

This table shows the sample selection procedure of this study. Because there is are a lot missing data in the audit fee, the bottom row shows the final sample without the audit fee missing data.

In Table 3 the sample breakdown is given. Table 3, Part A describes the breakdown of countries. This study selected annual financial statements of companies in the EU countries mentioned in the framework of Brown et al. (2014): for these countries enforcement data is

\(^2\) The two years prior to the year of mandatory IFRS adoption, the year of IFRS adoption, and the two years after, leads to the years 2003-2007.
available. The industry breakdown in Part B shows that the sample covers a reasonable representation of industries with most companies coming from Industrials (approximately 33 per cent). The sample breakdown provides an overview of the total sample with audit fee missing data and an overview of the sample with the audit fee missing data excluded.

### Table 3: Sample breakdown

<table>
<thead>
<tr>
<th>Part A: Country breakdown</th>
<th>Audit fee missing data included</th>
<th></th>
<th>Audit fee missing data excluded</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Firms</td>
<td>Percentage</td>
<td>Firms</td>
<td>Percentage</td>
</tr>
<tr>
<td>Austria</td>
<td>24</td>
<td>0.87</td>
<td>3</td>
<td>0.21</td>
</tr>
<tr>
<td>Belgium</td>
<td>84</td>
<td>3.06</td>
<td>36</td>
<td>2.48</td>
</tr>
<tr>
<td>Czech</td>
<td>21</td>
<td>0.76</td>
<td>6</td>
<td>0.41</td>
</tr>
<tr>
<td>Denmark</td>
<td>74</td>
<td>2.69</td>
<td>54</td>
<td>3.72</td>
</tr>
<tr>
<td>Finland</td>
<td>106</td>
<td>3.86</td>
<td>55</td>
<td>3.79</td>
</tr>
<tr>
<td>France</td>
<td>454</td>
<td>16.52</td>
<td>268</td>
<td>18.47</td>
</tr>
<tr>
<td>Germany</td>
<td>291</td>
<td>10.59</td>
<td>136</td>
<td>9.37</td>
</tr>
<tr>
<td>Greece</td>
<td>250</td>
<td>9.10</td>
<td>1</td>
<td>0.07</td>
</tr>
<tr>
<td>Hungary</td>
<td>20</td>
<td>0.73</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Ireland</td>
<td>31</td>
<td>1.13</td>
<td>28</td>
<td>1.93</td>
</tr>
<tr>
<td>Italy</td>
<td>218</td>
<td>7.93</td>
<td>136</td>
<td>9.37</td>
</tr>
<tr>
<td>Netherlands</td>
<td>118</td>
<td>4.29</td>
<td>32</td>
<td>2.21</td>
</tr>
<tr>
<td>Poland</td>
<td>173</td>
<td>6.30</td>
<td>17</td>
<td>1.17</td>
</tr>
<tr>
<td>Portugal</td>
<td>44</td>
<td>1.60</td>
<td>26</td>
<td>1.79</td>
</tr>
<tr>
<td>Slovenia</td>
<td>24</td>
<td>0.87</td>
<td>4</td>
<td>0.28</td>
</tr>
<tr>
<td>Spain</td>
<td>97</td>
<td>3.53</td>
<td>88</td>
<td>6.06</td>
</tr>
<tr>
<td>Sweden</td>
<td>280</td>
<td>10.19</td>
<td>134</td>
<td>9.24</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>439</td>
<td>15.98</td>
<td>427</td>
<td>29.43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,748</strong></td>
<td><strong>100.00</strong></td>
<td><strong>1,451</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part B: Industry breakdown</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil &amp; Gas</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Basis Materials (Mining excluded)</td>
<td>107</td>
<td>3.89</td>
<td>50</td>
<td>3.45</td>
</tr>
<tr>
<td>Industrials</td>
<td>894</td>
<td>32.53</td>
<td>487</td>
<td>33.56</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>524</td>
<td>19.07</td>
<td>222</td>
<td>15.30</td>
</tr>
<tr>
<td>Health Care</td>
<td>202</td>
<td>7.35</td>
<td>127</td>
<td>8.75</td>
</tr>
<tr>
<td>Consumer Services</td>
<td>441</td>
<td>16.05</td>
<td>254</td>
<td>17.51</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>52</td>
<td>1.89</td>
<td>27</td>
<td>1.86</td>
</tr>
<tr>
<td>Utilities</td>
<td>109</td>
<td>3.97</td>
<td>65</td>
<td>4.48</td>
</tr>
<tr>
<td>Financials</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Technology</td>
<td>419</td>
<td>15.25</td>
<td>219</td>
<td>15.09</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,748</strong></td>
<td><strong>100.00</strong></td>
<td><strong>1,451</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

*This table reports the sample breakdown of the selected firms by country and industry.*
IV. EMPIRICAL RESULTS

Descriptive statistics

Table 4 provides the descriptive statistics. With regards to the dependent variables, the dummy variable RESTAT has a mean value of 0.264, meaning that in 26.4% of the observations a restatement in the financial statements has occurred. The value of discretionary accruals (DACC) shows the amount as a percentage of the balance total for which the manager can manipulate the reported income. For instance, a value of 0.028 indicates that the manager can manipulate with an amount of 2.8% of the balance total. Therefore, this value is normally between 0 and 1. Higher values indicates that there can be manipulated with an amount which is higher than the balance total, which seems to be rare. The total amount of the companies with a value of DACC higher than one is 29, which is only 0.28% of the whole sample.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Median</th>
<th>Min.</th>
<th>Max.</th>
<th>St. dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESTAT</td>
<td>0.264</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.441</td>
</tr>
<tr>
<td>DACC</td>
<td>0.074</td>
<td>0.044</td>
<td>0</td>
<td>2.740</td>
<td>0.121</td>
</tr>
<tr>
<td>AUDITFEE</td>
<td>25,147.67</td>
<td>533</td>
<td>0</td>
<td>14,743,000</td>
<td>405,907.6</td>
</tr>
<tr>
<td>LNFEE</td>
<td>6.532</td>
<td>6.284</td>
<td>0</td>
<td>16.506</td>
<td>1.965</td>
</tr>
<tr>
<td>IFRS</td>
<td>0.634</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.482</td>
</tr>
<tr>
<td>ENFORCE</td>
<td>33.670</td>
<td>34</td>
<td>11</td>
<td>54</td>
<td>11.958</td>
</tr>
<tr>
<td>ASSETS</td>
<td>3,647,578</td>
<td>204,106</td>
<td>0</td>
<td>1,134,292,000</td>
<td>28,200,000</td>
</tr>
<tr>
<td>LNNASSETS</td>
<td>12.410</td>
<td>12.230</td>
<td>0</td>
<td>20.850</td>
<td>2.134</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.824</td>
<td>0.468</td>
<td>-91.962</td>
<td>93.325</td>
<td>4.262</td>
</tr>
<tr>
<td>CFFO</td>
<td>0.044</td>
<td>0.0648</td>
<td>-8.048</td>
<td>1.310</td>
<td>0.194</td>
</tr>
<tr>
<td>BIG4</td>
<td>0.681</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.466</td>
</tr>
</tbody>
</table>

This table shows the descriptive statistics of the variables used in this study. Because AUDITFEE and ASSETS show large outliers, the natural logarithm of these variables are used in the regressions.

With regards to the test variables, the mean (median) AUDITFEE in the sample is € 24,148 (€ 533). Because the mean is much higher than the median, this indicated there are relatively large values. To reduce the influence of this large observations the natural logarithm is taken of this variable (LNFEE). The dummy variable IFRS has a mean value of 0.634, meaning that in 63.4% of the firm-year observations the fiscal year ends after January 2005. Because the
time period of this study is 2003 – 2007 this seems reasonable: three out of five years are after January 2005, which is 60%. The average level of enforcement within a country, denoted by ENFORCE, is 33.67. With a range from 4 to 56, where the median is 34, this seems reasonable.

In addition the control variables ASSETS and LEVERAGE are discussed. The mean (median) of total assets is € 3,647,578 (€ 204,106). To reduce the influence of large observations the natural logarithm is taken of this variable (LNASSETS). The leverage – which indicates how much debt a company is using to finance its assets relative to the amount of value represented in in shareholders’ equity – is quite high in some cases. This can be the case if the company has been heavily taking on debt and thus has high risk. A negative leverage normally refers to two situations. First, a negative leverage ratio may refer to the negative net worth of a company. Secondly, a negative ratio can refer to the negative return on equity that results from the higher interest on debt than the investment return (Hiller et al., 2014). Taking a closer look to these outliers it consist of 271 companies which have a leverage higher than 5, and 396 companies with a negative leverage. Together it represents only 6.17% of the whole sample.

Table 5 presents the Pearson correlation for the variables used in the regressions. Except for the correlation between the level of enforcement within a country and IFRS, and the correlation between total amount of assets and the audit fee paid, the results of the multivariate regressions present no multicollinearity problems. This study made an additional test to see if these multicollinearities are a problem during the regressions. In Table 6 the variance inflation factors (VIF) are given for the variables. Since the tolerance (defined as 1/VIF) is higher than 0.1 further investigation is not necessary (Myers, 1990).

Table 5: Correlation matrix

<table>
<thead>
<tr>
<th></th>
<th>RESTAT</th>
<th>DACC</th>
<th>LNFEE</th>
<th>IFRS</th>
<th>ENFORCE</th>
<th>LNASSETS</th>
<th>LEVERAGE</th>
<th>CFFO</th>
<th>BIG4</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESTAT</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DACC</td>
<td>-0.0246</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LNFEE</td>
<td>0.1143</td>
<td>-0.1713</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFRS</td>
<td>-0.3223</td>
<td>-0.0752</td>
<td>0.0097</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENFORCE</td>
<td>-0.1220</td>
<td>-0.0498</td>
<td>-0.1478</td>
<td>0.5419</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LNASSETS</td>
<td>0.0857</td>
<td>-0.2088</td>
<td>0.8133</td>
<td>0.0273</td>
<td>-0.0122</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.0052</td>
<td>-0.0320</td>
<td>0.0710</td>
<td>0.0005</td>
<td>-0.0031</td>
<td>0.0715</td>
<td>1.000</td>
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<tr>
<td>CFFO</td>
<td>0.0337</td>
<td>-0.1904</td>
<td>0.1673</td>
<td>-0.0094</td>
<td>-0.0143</td>
<td>0.2446</td>
<td>0.0113</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>BIG4</td>
<td>0.0705</td>
<td>-0.0919</td>
<td>0.3387</td>
<td>-0.0501</td>
<td>0.0622</td>
<td>0.3802</td>
<td>-0.0013</td>
<td>0.0652</td>
<td>1.000</td>
</tr>
</tbody>
</table>

This table reports the pairwise Pearson correlations. Significance levels indicated as follows: **Bold** = significant $\rho \leq 0.01$

*Underline* correlations can lead to multicollinearity problems, due to the high correlation.
Table 6: VIF scores

<table>
<thead>
<tr>
<th>Variables</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENFORCE</td>
<td>1.88</td>
<td>0.531</td>
</tr>
<tr>
<td>IFRS</td>
<td>1.84</td>
<td>0.543</td>
</tr>
<tr>
<td>LNFEE</td>
<td>3.05</td>
<td>0.328</td>
</tr>
<tr>
<td>LNASSETS</td>
<td>3.50</td>
<td>0.286</td>
</tr>
</tbody>
</table>

This table reports the variance inflation factors for the variables which could lead to multicollinearity problems.

Empirical results

Table 7 presents the results of the (seven) regression models showed in the previous section. The next section will assess these results for each hypothesis separately.

Hypothesis 1

The first hypothesis predict the positive influence of audit fee on audit quality. Therefore the coefficient of these two regressions should be negative: the higher the audit fee, the higher the audit quality which indicates a lower number of restatements and lower discretionary accruals. However, the coefficients of LNFEE are positive and significant both for RESTAT and DACC. Hypothesis 1 has to be rejected which means audit fee is negatively related with audit quality. A possible explanation for this can be the level of dependency of the auditor on the client by high audit fees: there is a fear of losing clients and therefore incentives appear to don’t report any misstatements (Dye, 1991). Another possible explanation is the pricing power of audit firms or the complexity and size of the client (Francis et al., 2007).

The R-squares of these models are only 0.12 and 0.083. This indicates that the predicted variable, audit quality, is explained by only 12% and 8.3% of the independent variables: the explanatory power of the regressions is not reasonable.

Hypotheses 2 and 3

The second and third hypothesis predict the positive influence of both mandatory IFRS adoption and the level of enforcement within a country on the audit quality. Therefore, the coefficient of these variables should be negative: the adoption of mandatory IFRS and a higher level of enforcement should lead to lower restatements (regression 3) and lower discretionary accruals (regression 4). The coefficients of IFRS are negative both for RESTAT and DACC, and significant. This means hypothesis 2 can be accepted: the mandatory adoption of IFRS
decreases the probability of restatements and the amount of discretionary accruals and therefore increases the audit quality. The coefficients of ENFORCE shows different results. First, there seems to be a positive relationship which is significant between the probability of any restatements and the level of enforcement within a country. Secondly, there is a minimal negative relationship between the amount of discretionary accruals and the level of enforcement, however this is not significant. To conclude, the level of enforcement within a country positively influence the probability of restatements and therefore negatively influence audit quality: hypothesis 3 has to be rejected. A possible explanation for this possible direction is the explanatory power of the models. The adjusted R-squares of these models are only 0.101 and 0.070 respectively, which means that the predicted variable, audit quality, is not explained very well by the independent variables in these regression models.

Hypotheses 4a and 5a

The fifth regression model test the influence of mandatory IFRS adoption and the level of enforcement within a country on the audit fee. It was predicted that both of these variables have a positive effect on the audit fee, which should imply two positive coefficients. However, IFRS shows a negative coefficient, so after the adoption of mandatory IFRS the audit fee decreases. This is in the opposite direction than expected and hypothesis 4a has to be rejected. An explanation could be that the IFRS-related audit fee premium is lower in countries with stronger legal regimes (Kim et al., 2012). Due to the missing data in audit fee (as mentioned earlier) a lot of observations in the sample are excluded in this regression. Consequently, the countries with the highest levels of enforcement represent most of the data in this regression.
The United Kingdom, as an example, counts 1486 firm-year observations in the remaining sample of 4476 observations. So in the regression analysis, the UK represented 33% of the whole sample, which is quite a lot. In the sample breakdown (Table 3) proportions are shown in detail. If the IFRS-related audit fee premium is indeed lower in countries with stronger legal regimes like the UK, this negative relationship could be explained. The relationship between the audit fee and the level of enforcement is positive, so hypothesis 5a can be accepted.

The adjusted R-square of this regression model is quite high (0.672) which means that the audit fee is explained very well by the independent variables. According to Hay et al. (2006) this is because the amount of variation explained by size – measured by LNASSETS – is generally in excess of 70 percent.

**Hypotheses 4b and 5b**

The last two regression models give an answer on the question whether the audit fee mediates the effect of mandatory IFRS adoption and the level of enforcement on audit quality. Before looking at the results and give a conclusion, three conditions must hold before the question can arise in the first place. First, the relationship between IFRS and ENFORCE on audit quality must be significant (otherwise there is no relationship at all on the first place). Secondly, the independent variables, which are IFRS and ENFORCE, must influence the mediator, which is the audit fee. And finally, the mediator must, on his turn, influence the independent variable, which is audit quality.

With respect to the mandatory adoption of IFRS, the first condition holds: there is a (positive) significant relationship between audit quality and mandatory IFRS adoption. Also the second condition – mandatory IFRS adoption influences the audit fee – holds. However, this relationship is the opposite than expected: the mandatory adoption of IFRS lowers the audit fee. Finally the third and last condition is also present: the audit fee influences audit quality. But also this relationship is the opposite than expected: the higher audit fee, the lower audit quality. Taking into account these opposite directions, mediation by the audit fee takes place if the positive relationship between mandatory IFRS adoption and audit quality in this final regression becomes weaker. In other words, the indirect effect of the lower audit fee due to mandatory IFRS adoption which translates into a higher audit quality is now eliminated due to adding audit fee in the regression.

Looking at the outcome of the regression models this is not the case regarding RESTAT: the coefficient decreases from -1.774 to -1.931 which means the relationship between IFRS and audit quality increases. However, regarding DACC the coefficient increases from -0.016
to -0.015 which indicates the positive relationship between IFRS and audit quality weakens. Therefore hypothesis 4b cannot be fully accepted: audit fees only mediates the relationship between DACC and mandatory IFRS adoption.

With respect to the level of enforcement within a country, the first condition holds only for the number of restatements which shows a positive relationship between the number of restatements and the level of enforcement. Therefore, for hypothesis 5b, only RESTAT is used as the measurement of audit quality. This relationship is the opposite than expected: the level of enforcement influence audit quality negatively. The second condition – the level of enforcement influences the audit fee (positively) – holds. The third and last condition is also present: the audit fee influences the probability of restatement. But, again in the opposite direction than expected. Taking into account these opposite directions, mediation by the audit fee takes place if the negative relationship between the level of enforcement and audit quality in this final regression becomes weaker. In other words, the indirect effect of the higher audit fee due to the higher level of enforcement, which translates into a lower audit quality is now eliminated due to adding audit fee in the regression.

Looking at the outcome of the regression model the coefficient increases from 0.018 to 0.033. Because this higher probability of restatement leads to lower audit quality the negative relationship between enforce and audit quality becomes stronger: hypothesis 5b has to be rejected.

**Additional tests**

This study performed several analyses to ensure the robustness of the results. First of all, the analyses are repeated on a different subset of countries: the regressions are performed with firms located in the UK (country code 826) excluded. This country is deleted in the sample because it contains a lot of firms and therefore represent a high part of the regression models. Table 8 present the outcomes of these performed regressions. Comparing the outcomes in this table with the outcomes in table 7 (which present the regression result of the whole sample, including the UK) there are some differences in signification levels which may indicate the results are not robust. The signification level of the variable LNFE on audit quality decreases. However it is still significant, but at a lower level, this would not lead to robustness problems. More seriously are the signification level of the variable ENFORCE on the audit fee and on the probability of restatement. By removing UK from the sample, this coefficients aren’t significant anymore so hypotheses cannot be accepted anymore. Concluding, the results in table 7 aren’t very robust because excluding one country will lead to different results.
Secondly, the variable DACC is added in the regression where the probability of restatement is the independent variable. This because there could be a relationship between those two (Dechow et al., 2011). Looking at the results in table 9, the relationship between DACC and RESTAT is not significant so there is no relationship. Further, in this new regression the relationships and signification levels between the other variables aren’t changing.

### Table 8: UK excluded for robustness check

<table>
<thead>
<tr>
<th>Variable</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
<th>R5</th>
<th>R6</th>
<th>R7</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNFEER</td>
<td>0.078**</td>
<td>0.002*</td>
<td></td>
<td></td>
<td>0.008</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>IFRS</td>
<td></td>
<td>-1.833***</td>
<td>-0.015***</td>
<td>-0.332***</td>
<td>1.968***</td>
<td>-0.018***</td>
<td></td>
</tr>
<tr>
<td>ENFORCE</td>
<td></td>
<td>0.010***</td>
<td>-0.000***</td>
<td>0.003</td>
<td>0.008</td>
<td>-0.000</td>
<td></td>
</tr>
<tr>
<td>LNASSETS</td>
<td>0.049</td>
<td>-0.009***</td>
<td>0.087***</td>
<td>-0.007***</td>
<td>0.754***</td>
<td>0.123***</td>
<td>-0.008***</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>0.005</td>
<td>-0.000</td>
<td>0.006</td>
<td>-0.001***</td>
<td>-0.016**</td>
<td>-0.007</td>
<td>-0.000</td>
</tr>
<tr>
<td>CFFO</td>
<td>0.011</td>
<td>0.018</td>
<td>0.041</td>
<td>-0.088***</td>
<td>-0.935***</td>
<td>0.037</td>
<td>-0.019</td>
</tr>
<tr>
<td>BIG4</td>
<td>0.002</td>
<td>-0.003</td>
<td>0.084</td>
<td>-0.005*</td>
<td>0.208***</td>
<td>-0.159</td>
<td>-0.005</td>
</tr>
<tr>
<td>INTERCEPT</td>
<td>-2.355***</td>
<td>0.162***</td>
<td>-1.538***</td>
<td>0.196***</td>
<td>-3.310***</td>
<td>-1.708***</td>
<td>0.178***</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.011</td>
<td>0.028</td>
<td>0.118</td>
<td>0.055</td>
<td>0.625</td>
<td>0.1262</td>
<td>0.0373</td>
</tr>
<tr>
<td>N</td>
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<td>2990</td>
<td>8857</td>
<td>8857</td>
<td>2990</td>
<td>2990</td>
<td>2990</td>
</tr>
</tbody>
</table>

This table reports robust regressions by excluding UK in the sample.

* *, **, ***: significant at 0.10, 0.05 and 0.01 level, respectively.

### Table 9: adding DACC as independent variable for robustness check

<table>
<thead>
<tr>
<th>Variable</th>
<th>RESTAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>DACC</td>
<td>-0.539</td>
</tr>
<tr>
<td>LNFEER</td>
<td>0.066**</td>
</tr>
<tr>
<td>IFRS</td>
<td>-1.940***</td>
</tr>
<tr>
<td>ENFORCE</td>
<td>0.033***</td>
</tr>
<tr>
<td>LNASSETS</td>
<td>0.107***</td>
</tr>
<tr>
<td>LEVERAGE</td>
<td>-0.009</td>
</tr>
<tr>
<td>CFFO</td>
<td>0.246</td>
</tr>
<tr>
<td>BIG4</td>
<td>-0.007</td>
</tr>
<tr>
<td>Intercept</td>
<td>-2.821***</td>
</tr>
<tr>
<td>Adj. R²</td>
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</tr>
<tr>
<td>N</td>
<td>4476</td>
</tr>
</tbody>
</table>

This table reports robust regression where RESTAT is the dependent variable. According to Dechow et al. (2011), there is a positive association between RESTAT and DACC.

* *, **, ***: significant at 0.10, 0.05 and 0.01 level, respectively.


V. CONCLUSIONS

The improvement of audit quality is at the forefront of the agenda nowadays. Therefore, many literature discuss the determinants of high audit quality. This study examines the effect of the mandatory IFRS adoption in 2005 and the level of enforcement within a country on the audit quality. The main research question is whether the audit fee is a mediator in this relationship. This question is important, because prior studies show that there are relationships between IFRS adoption, the level of enforcement, the audit fee, and audit quality. However, these studies focused on the relationships separately. No prior study recognized the “two-tier role” of the audit fee: as independent variable for audit quality, and dependent variable for IFRS adoption and the level of enforcement.

To investigate this relationship, this study requires a setting around the time of mandatory IFRS adoption in the year 2005. The data used is a sample of 10,379 firm-year observations (4,476 if the regression includes audit fee) of European firms, collected with Thomson Reuters Datastream and Eikon.

Findings shows some different outcomes than expected. First, results show that audit fee is negatively related with audit quality: the opposite direction than expected. An explanation for this negative relationship between those two variables could be the pricing power of audit firms, the complexity and size of the client, or the dependency of the audit firm on the client (Francis et al., 2007; Dye, 1991). Second, the relationship between mandatory IFRS adoption and audit quality shows a positive relationship, as expected. Results do not provide evidence to support the hypothesis that the level of enforcement is positively related with audit quality. An explanation for this could be the representation of the countries which is out of balance due to the missing data in audit fee, which could have an influence on the outcome of the variable ENFORCE (for example, the UK represents 30% of the whole sample while Austria represents only 0.21%). Also the expectation that the mandatory IFRS adoption positively influence audit fee has to be rejected. Again, the poorly representation of the countries could be the reason for this opposite direction. This because the IFRS-related audit fee should be less in countries with a higher enforcement level according to Kim et al., 2012. The positive relationship between the level of enforcement and audit fee is as expected. Because all the outcomes are significant the final question if audit fee mediates the relationship between mandatory IFRS adoption, the level of enforcement, and audit quality can still be asked (despite some of the results showed the opposite relationship than expected). Answering this question, this study conclude the audit fee is a mediator, but only in the relationship between mandatory IFRS adoption and audit
quality, measuring audit quality as discretionary accruals. In other words, audit fee mediates the influence of mandatory IFRS adoption audit quality, but this only holds for discretionary accruals as measurement for audit quality. For the probability of any restatement no conclusions can be drawn because the outcomes are not fully significant.

This study has some limitations. First, because firms have to report the audit fee in public only from 2008 an later, the audit fee is not available for all the firms in the sample. More precisely, the total number of firms in the regressions including the audit fee as a variable is 4,476, which is 10,379 in the regressions without the audit fee as a variable. Despite this difference it is decided to include the firms with this missing data, otherwise problems emerge in the dataset. For example, in Austria there are only four firm-year observations which included the audit fee. So a big limitation in this study is that the representation of “European listed firms” is very weak in the regressions including audit fee. Therefore, this study is more an explorative one regarding the relationship between IFRS and enforcement on audit quality with the audit fee as mediator. Meaning the results are not intended to provide conclusive evidence, but helps to understand this relationship and give new insights for future research.

Secondly, this study used as proxy for the level of enforcement within a country the framework set up by Brown et al. (2014), which identify country differences in the environment in which auditors perform their role and in the activities of national enforcement bodies in relation to enhancing compliance with accounting standards. Despite the use of this framework for measuring enforcement is contributive to the literature, Brown et al. (2014) set up this framework only for the years 2002, 2005 and 2008. For the years 2003, 2004, 2006 and 2007 this study uses the average. So it could be the case that the level of enforcement used in this study deviates from the level of enforcement in real. But due the time schedule of this study further research to this wasn’t possible. For future research, the framework of Brown et al. (2014) could be expanded to more years.

Finally, the robustness of this study is very poor. The main reason for this is the scattered representation of the countries due to audit fee missing data. For future research, it is recommended to collect audit fee data more appropriate which means manually for the missing data in this study (very time-intensive), or use a different time period in which more audit fee data is available. However, research to mandatory IFRS adoption is not possible in the latter.
REFERENCES


APPENDIX 1 – ENFORCEMENT SCORES

Comparison of Enforcement Scores by Year, for the Countries adopted IFRS in 2005
(Brown et al., 2014)

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2005</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>4-56</td>
<td>4-56</td>
<td>4-56</td>
</tr>
</tbody>
</table>

**Countries (low to high enforcement)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Romania</td>
<td>9</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Hungary</td>
<td>15</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>Czech</td>
<td>11</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Slovenia</td>
<td>17</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Croatia</td>
<td>7</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>Greece</td>
<td>12</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Austria</td>
<td>17</td>
<td>26</td>
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</tr>
<tr>
<td>Poland</td>
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<td>17</td>
<td>28</td>
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<td>Portugal</td>
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<td>29</td>
</tr>
<tr>
<td>Finland</td>
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<tr>
<td>Sweden</td>
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<td>Ireland</td>
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<td>Spain</td>
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<tr>
<td>Germany</td>
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<tr>
<td>United Kingdom</td>
<td>32</td>
<td>54</td>
<td>54</td>
</tr>
</tbody>
</table>

This table shows the enforcement levels of each country in Europe according to the framework of Brown et al. (2014).