

Olsen, Carsten Allerslev

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SOLBJERG PLADS 3
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DANMARK

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FINANCIAL REPORTING ENFORCEMENT: IMPACT AND CONSEQUENCES

Carsten Allerslev Olsen

FINANCIAL REPORTING ENFORCEMENT

IMPACT AND CONSEQUENCES

Doctoral School of Business and Management

PhD Series 12.2018

CBS  **COPENHAGEN BUSINESS SCHOOL**
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Financial Reporting Enforcement: Impact and Consequences

Carsten Allerslev Olsen

Supervisors

Thomas Plenborg (CBS)

Thomas Riise Johansen (CBS)

Doctoral School of Business and Management (BM)

Copenhagen Business School (CBS)

Carsten Allerslev Olsen
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1 Acknowledgements

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2 Summary

This dissertation explores how financial reporting enforcement differs in Europe and how these differences influence the materiality assessment and disclosure decisions made by the preparers of the financial statement. Furthermore, it analyses how financial reporting enforcement influences the auditors' auditing efforts, which are made in conjunction with the impact of the enforcement of auditors and limitations on the auditors' liability. However, research indicates that strict enforcement is a prerequisite for ensuring compliance with accounting regulations (Hail and Leuz 2006, Daske et al. 2008, 2013, Ernstberger et al. 2012, Christensen et al. 2013, Leuz and Wysocki 2016). Nevertheless, enforcement remains at the discretion of the individual member states, which has led to heterogeneous enforcement despite recent attempts to strengthen and harmonise it (Hirtz et al. 2012, Christensen et al. 2013, Brown et al. 2014). This heterogeneous enforcement has created a particular need to understand how enforcement influences financial reporting if the primary users must be able to use it as a reliable source of information. This issue is investigated in the following three papers that compose this dissertation.

The first paper of the dissertation analyses how the strictness in financial reporting enforcement varies across 17 European countries and the extent to which enforcement proxies in the existing accounting literature reflects the actual performed financial reporting enforcement. Based on survey responses from European enforcement bodies and regulatory specialists, the study observes extensive variations in the strictness of financial reporting enforcement across the European countries, despite ESMA's efforts to achieve more homogeneous enforcement in Europe. Furthermore, existing enforcement indices used in the accounting literature do not generally correlate with the enforcement index developed in this study, which begs the question of what the existing enforcement indices of financial reporting are measuring.

The second paper discusses how the strictness of financial reporting enforcement, the applied enforcement strategy, and the materiality assessment impact firms' mandatory disclosure decisions. Based on a sample

covering 285 firms in 12 European countries, this study finds that immaterial items exhibit a significantly lower level of compliance with the mandatory disclosure requirements of IAS 36, than material items. This indicates that preparers conduct a materiality assessment when deciding on the level of mandatory disclosures, and that the materiality assessment considers both the absolute and relative size of the item being disclosed. The strictness of enforcement is a significant determinant of the level of compliance. However, this holds true only if the enforcement is based on either the deterrence enforcement strategy or a combination of the deterrence and persuasion enforcement strategies, as the persuasion enforcement strategy does not appear to influence the level of compliance. Furthermore, the study finds that the strictness of financial reporting enforcement does not significantly influence materiality assessment. Thus, the findings of this study do not support the argument that a strict enforcement forces preparers to disclose immaterial information.

The third paper examines how the enforcement of financial reporting, the enforcement of auditors and the limitations to the auditors' liability impact the auditors' auditing efforts of the statutory financial report. Previous research suggests that strict enforcement makes auditors increase their audit efforts and that a limitation to the auditors' liability makes auditors reduce their audit efforts. However, unlike prior research, this study distinguishes between different kinds of enforcement and applies an enforcement measure designed to capture this particular kind of enforcement as opposed to applying a general measurement of enforcement. Understanding how different kinds of enforcement affect the audit efforts may help regulators and enforcers to be better able to achieve the desired enforcement outcomes. Based on a sample of six countries, this study finds that a strict financial reporting enforcement and limitations to the auditors' liability have a significant and negative influence on the audit efforts. Further, the strict enforcement of auditors has a positive and significant influence on the audit efforts. The study contributes to the literature by exploring how different kinds of enforcement impact the auditors' auditing behaviour.

3 Resumé (Summary in Danish)

Afhandlingen undersøger hvordan regnskabskontrollen i Europa varierer, og hvordan denne variation influerer på regnskabsaflæggenes vurderinger af væsentlighed og afgivne oplysninger. Yderligere undersøges det, hvorledes regnskabskontrollen influere på revisors' revisionsindsats, når der tages behørigt hensyn til effekterne fra revisorkontrollen og begrænsninger i revisors' erstatningsansvar. Forskningen viser, at en streng kontrol er nødvendig, for at sikre efterlevelsen af regnskabsreguleringen (Hail and Leuz 2006, Daske et al. 2008, 2013, Ernstberger et al. 2012, Christensen et al. 2013, Leuz and Wysocki 2016). På trods af nylige tiltag for at styrke og harmonisere regnskabskontrollen, er den forblevet et nationalt anliggende, hvilket har medført en uensartet tilgang til regnskabskontrollen (Hirtz et al. 2008, Christensen et al. 2013, Brown et al. 2014). Den uensartede regnskabskontrol har medført et særligt behov for at forstå, hvordan regnskabskontrollen påvirker årsregnskabet, såfremt de primære brugere af årsrapporten fortsat skal kunne anvende det som en pålidelig informationskilde. Afhandlingen udgøres af tre artikler, der undersøger disse forhold nærmere.

Afhandlingens første artikel undersøger, hvordan regnskabskontrollen i 17 Europæiske lande varierer og hvordan indeks over regnskabskontrol fra den eksisterende litteratur, afspejler den faktisk foretagne regnskabskontrol. Undersøgelsen finder, på baggrund af et spørgeskema udsendt til tilsynsmyndighederne i Europa og regulatoriske specialister fra et Big 4-netværk at der, på trods af ESMAs ambition om en mere ensartet tilgang til regnskabskontrollen i Europa, er en omfattende variation i styrken af den udførte regnskabskontrol. Hertil kommer, at det i artiklen udviklede indeks over regnskabskontrol ikke korrelerer med eksisterende indeks, som har været anvendt af regnskabslitteraturen, hvilket befordrer spørgsmålet, hvad disse anvendte indeks egentlig måler.

Afhandlingens anden artikel undersøger, hvorledes regnskabskontrollens styrke, den anvendte kontrolstrategi og væsentlighedsvurderinger påvirker beslutningerne om afgivelse af påkrævet oplysninger

(mandatory disclosures). Undersøgelsen finder, på baggrund af en stikprøve bestående af 285 virksomheder fra 12 Europæiske lande, at der afgives væsentligt færre oplysninger, påkrævet efter IAS 36, når det underliggende forhold er uvæsentligt, end når det er væsentligt. Dette indikerer, at regnskabsafłæggerne foretager en væsentlighedsvurdering, når de beslutter hvilke oplysningskrav de skal afgive, og at væsentlighedsvurderingen tager hensyn til både den absolutte, og relative størrelse, på det underliggende forhold. Regnskabskontrollens styrke er en væsentlig determinant for graden af efterlevelse af påkrævet oplysningskrav, såfremt at regnskabskontrollen er baseret på en afskrækkelses (deterrence) kontrolstrategi, eller en blanding af afskrækkelses (deterrence) og overtalelses (persuasion) kontrolstrategierne, idet en overtalelses (persuasion) kontrolstrategi ikke fremstår til, at influere på graden af efterlevelse. Undersøgelse finder yderligere, at regnskabskontrollens styrke ikke i væsentlig udstrækning påvirker væsentlighedsvurderingen. Argumenterne for, at en stærk regnskabskontrol tvinger regnskabsafłæggerne til at afgive uvæsentlige oplysninger finder således ikke støtte i nærværende undersøgelse.

Den tredje artikel undersøger hvordan regnskabskontrollen, revisorkontrollen og begrænsninger i revisors erstatningsansvar påvirker revisors revisionsindsats ved revisionen af årsrapporten. Tidligere forskning indikerer, at en stærk kontrol får revisorerne til at øge deres revisionsindsats, og at begrænsninger i revisors erstatningsansvar får revisorerne til at reducere deres revisionsindsats. Til forskel fra tidligere undersøgelser differentieres der i nærværende undersøgelse mellem forskellige kontroltype, og der anvendes kontrol indeks som er designet til at måle disse specifikke kontroltyper, og ikke blot det generelle kontrol niveau. Undersøgelse finder, på baggrund af en stikprøve fra seks lande, at både en stærk regnskabskontrol og begrænsninger af revisors erstatningsansvar har væsentlig og negativ indflydelse på revisionsindsatsen. Yderligere, har en stærk revisorkontrol en væsentlig og positive indflydelse på

revisionsindsatsen. Undersøgelsen bidrager til den eksisterende litteratur ved at undersøge hvordan forskellige typer af kontrol influerer på revisionsindsatsen.

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5 Objective, motivation and background

The objective of this dissertation is to investigate how the enforcement of financial reporting in Europe differs and how these differences influence not only firms' decisions on materiality and disclosure but also auditors' auditing efforts.

The intention of the general-purpose financial statement is to supply existing and potential capital providers with financial information (Healy and Palepu 2001, IASB 2010). Existing capital providers use the information to monitor how invested resources are managed (the stewardship perspective), which enables them to hold the management team accountable. Potential capital providers use the information to evaluate the return on possible investment opportunities (the valuation perspective). To achieve these objectives, the capital providers need information that is both transparent and comparable. However, despite several decades of financial reporting harmonisation¹ among European countries, financial reports continue to exhibit national characteristics, reducing the comparability and transparency of financial information between different countries (Nobes 1998, 2006, Pope and McLeay 2011).

The European Commission (EC) attempted in 2002 to increase cross-border transparency and the comparability of financial information by adopting regulation 1606/2002 (EP 2002). Regulation 1606/2002 (known as the IAS regulation) requires listed firms in the European Union (EU) to prepare their consolidated financial statements in accordance with the International Financial Reporting Standards (IFRS) beginning in financial year 2005 (EP 2002). The EC expected that a higher degree of transparency and comparability would improve the efficiency of its capital markets (Ernstberger et al. 2012, Brüggemann et al. 2013).

¹ The Treaty of Rome (1957) stated that the objective of the European Economic Community (EEC) was to establish the free movement of capital (along with the free movement of persons, goods and services). This led to attempts to harmonise company laws by using Directives. Attempts were made at harmonising financial reporting through the Fourth (1978) and Seventh (1983) Directives. Both of these directives were repealed with the adoption of the new accounting directive in 2013 (Directive 2013/34/EU).

However, it is uncertain whether these expected benefits have materialised and if they have, whether they are caused by the adoption of IFRS or other changes in the institutional setting.

Research indicates that the adoption of a set of high-quality accounting standards alone is insufficient to generate the expected benefits (Holthausen 2009, Barth et al. 2012, Ernstberger et al. 2012, Horton et al. 2013, Humphery-Jenner 2013, Cascino and Gassen 2015, Leuz and Wysocki 2016). Therefore, the adoption of regulation 1606/2002 is unlikely to yield the expected benefits. However, research also indicates that the benefits of adopting a set of high-quality accounting standards are more likely to be realised if the adoption is coupled with changes in the institutional setting, i.e., the enforcement of financial reporting (Hail and Leuz 2006, Daske et al. 2008, 2013, Jackson and Roe 2009, Florou and Pope 2012, Ernstberger et al. 2012, Christensen et al. 2013). Consequently, it is likely that the expected benefits may have been realised not only by adopting a set of high-quality accounting standards but also through institutional changes, particularly in the financial reporting enforcement environment.

The EC knew that enforcement of financial reporting would be important for achieving the benefits, writing in the IAS-regulation *'...that a proper and rigorous enforcement regime is key...'* (EP 2002). The enforcement of financial reporting was left to the discretion of the individual member states. However, the EC did require that the member states should *'...take appropriate measures to ensure compliance with IAS.'* (EP 2002). Consequently, financial reporting enforcement in the EU remains largely heterogeneous despite recent attempts to strengthen and harmonise it (Hitz et al. 2012, Christensen et al. 2013, Brown et al. 2014). Ongoing differences in financial reporting enforcement across the European countries have raised the question upon which this dissertation rests. This question is as follows:

'How does enforcement differ across European countries, and what are the consequences of these differences for financial reporting?'

The answer to this question is important for several reasons. First, each year, the European countries devote a large amount of resources—both directly and indirectly—to enforcement without knowing what they will receive in return (Holthausen 2009, Humphery-Jenner 2013). A better understanding of financial reporting enforcement and its effects will enable decision makers to make more enlightened decisions about the future allocation of these resources. Second, an inadequate understanding of the effects of enforcement may cause countries to implement enforcement activities that directly harm the transparency and comparability of the financial reports and/or the effectiveness and efficiency of the capital markets. This will cause both current and potential capital providers to devote additional resources to their decision-making process, thereby increasing transaction costs (Leuz and Wysocki 2016). Third, failing to fully understand the effects of financial reporting enforcement makes it difficult for countries to optimise the level of enforcement and the applied enforcement strategy relative to the resources applied and thus realising the beneficial effects of a set of high-quality accounting standards. Consequently, there is a need for a better understanding of how enforcement affects financial reporting.

The rest of this introduction is organised as follows: section seven includes a general discussion of regulation and enforcement, materiality and the auditors' liability and auditing efforts and the problems associated with measuring these items. Section eight describes the research method, and section nine presents the findings of the thesis. Section ten summarises the contributions and implications.

6 Key concepts in the three articles

6.1 Regulation and enforcement

Governments pass regulations—for example, the IAS regulation—in an attempt to realise political objectives that are seen as beneficial for their citizens, communities and economy. Whereas regulations may set the goals, the accompanying enforcement ensures that the goals of the regulation are met because

a lack of enforcement will make it virtually impossible to achieve those goals (Leuz 2010, Humphery-Jenner 2013, OECD 2014b). Therefore, there is a clear link between the regulation and its enforcement. The regulation establishes the objectives, frame and tools for enforcement, whereas the actual enforcement ensures both that the objectives of the regulation are achieved and that the regulation is generally obeyed (Coffee 2007, Jackson and Roe 2009, Humphery-Jenner 2013, OECD 2014a).

Regulations and their enforcement differ between countries, but are rooted in their historical development and the general institutional setting of the individual countries (Shleifer 2005, Jackson and Roe 2009). The goals of regulation and enforcement are different. The general objective of regulation is to deter misconduct. For example, the objective of the regulation on financial reporting is to protect creditors (Brown and Tarca 2007, Leuz 2010, Ernstberger et al. 2012, Humphery-Jenner 2013, OECD 2014a, 2014b).

In recent decades, governments have attempted to enhance regulatory quality by passing regulations that ensure regulatory transparency and accountability (Baldwin et al. 2010, 2012, OECD 2014a). This is done by applying the principles of 'Better Regulation', which aims to ensure that regulation and its enforcement are proportionate, accountable, consistent, transparent and targeted (Baldwin et al. 2010, 2012, OECD 2014a).

The success of regulation depends on more than well-designed rules; it also requires consistent and effective enforcement (Jackson and Roe 2009, Humphery-Jenner 2013, OECD 2014a, 2014b). Enforcement is an elusive concept without a clear definition, as discussed in Article 1. Based on this discussion, enforcement may generally be considered to include rules, procedures and activities of a preventive and detective nature that ensure compliance with a given regulation, such as accounting standards or security laws. According to Shleifer (2005), enforcement may be conducted through public institutions that enact rules and procedures and perform the activities necessary to ensure compliance with the regulation. This approach is known as public enforcement and is performed by national enforcement bodies such as the

SEC in the US, Erhvervsstyrelsen in Denmark, and FREP/BaFin in Germany. Conversely, rules, procedures and activities may also be enacted by private actors. This is known as private enforcement. One example of private enforcement is that of a class-action law suit against the preparers and auditors of financial reports (Höltken and Ebner 2015).

A pure application of either public or private enforcement incurs social losses. In a purely public enforcement environment, these social losses are caused by governments or their officials attempting to exploit market participants. In a purely private enforcement environment, social losses are incurred as individuals attempt to exploit market participants by abusing their political, economic or social resources to damage or steal from their rivals. Social losses are minimised when the two enforcement approaches are mixed (Shleifer 2005). Consequently, the optimal institutional design for enforcement involves a trade-off between imperfect alternatives, which minimises the incurred social losses (Shleifer 2005, Armour et al. 2009). As a practical matter, common law tends to be biased towards private enforcement, which is especially clear in the US, whereas European countries appear to favour civil law, which is biased towards public enforcement (Shleifer 2005, La Porta et al. 2006, Coffee 2007). This dissertation focuses on the effects of public enforcement, which is the predominant type of enforcement in Europe.

Enforcement must be applied with due consideration to the institutional setting in which it operates. This means that enforcement activities that are highly effective in one country may be ineffective in another country (Leuz 2010). Consequently, numerous enforcement strategies have been developed. The dominant, most widely used enforcement strategies are the deterrence strategy, the persuasion strategy and a combination of the two (Baldwin et al. 2012).

The deterrence enforcement strategy embraces the use of penalties and prosecution as the means of securing compliance. The penalties applied by this strategy are usually severe and include, inter alia,

criminal sanctions, licence suspension and license revocation (Ayres and Braithwaite 1992, Baldwin et al. 2012). The persuasion enforcement strategy works in the opposite manner to the deterrence strategy, attempting to secure compliance through dialogue, encouragement and education (Ayres and Braithwaite 1992). The deterrence and persuasion enforcement strategies may also be mixed, and in these instances, enforcement is based on a 'tit-for-tat' approach. This means that the enforcement process is initiated by attempting to convince and persuade (using dialogue, encouragement and education) the enforced entity into compliance. If the persuasion strategy is unsuccessful, the enforcer will begin to apply more punitive measures, following the steps in an enforcement pyramid². These measures begin with non-penal actions and escalate to more punitive measures when prior efforts have failed to produce the desired results. The switch to punitive measures is essentially a switch from the persuasion enforcement strategy to the deterrence strategy. Enforcement by mixing deterrence and persuasion appears to be the most successful of the enforcement strategies and has been adopted by a host of governments and regulators worldwide (Scholz 1984, Baldwin and Black 2008, Baldwin et al. 2012, Choi et al. 2016).

The chosen enforcement strategy must complement the regulation because otherwise, it may be impossible to implement the strategy. For instance, a deterrence strategy will be ineffective if the regulation loses its ability to impose sanctions. Similarly, the persuasion strategy will be ineffective if the regulation forbids enforcers from engaging in an open dialogue with the enforced entities. Furthermore, the enforcement strategy must consider the environment in which it must operate. Ayres and Braithwaite (1992) finds that industries subject to many quick changes are best enforced through application of the persuasion strategy, as regulations may struggle to keep pace with the rapid changes of such industries.

²The enforcement pyramid is a hierarchical collection of enforcement tools that escalate from persuasion at the base to warning letters and civil penalties in the middle layers to criminal sanctions and licence suspension and revocation at the tip (Ayres and Braithwaite 1992). The pyramid can also be applied to industries in which the base of the pyramid is self-regulation and enforced self-regulation and command regulation, with discretionary punishment in the middle layers and command regulation with non-discretionary punishment at the tip (Baldwin et al. 2012).

This also means that the full benefits of the persuasion enforcement strategy are only achieved if enforcers are authorised to perform ex ante enforcement, i.e., to engage in discussions with the enforced entity about how compliance may be reached on specific issues (Coffee 2007, Armour et al. 2009).

6.2 Measuring the enforcement

The number of studies investigating how enforcement impacts financial reporting has increased significantly during the last decade. However, as discussed in the first article, many of the enforcement indices used in these studies are noisy at best. This means that better measurements of enforcement might very well show that enforcement has an even stronger impact on financial reporting outcomes than identified by the prior literature (Holthausen 2009). Furthermore, the existing studies all suffer from a common flaw, as none of those studies consider the effects of the applied enforcement strategy. Consequently, an appropriate first step in obtaining a better understanding of how the enforcement of financial reporting affects disclosure decisions, materiality assessments and the auditors' auditing efforts is to obtain a more accurate measure of enforcement. Naturally, this raises the question of how enforcement should be measured.

An accurate measurement of enforcement is difficult, if not impossible, as the measurement must consider not only the 'rule of the book' but also the actual applied enforcement activities and their effect (Holthausen 2009, Jackson and Roe 2009, Humphery-Jenner 2013). Mahoney (2009) claims that it is the rule, rather than the exception, that enforcement indices miss regulatory design features, with enormous practical consequences. However, these design features are likely to be captured by measuring the actual performed enforcement. Consequently, enforcement measures must measure more than just the 'rule of the book', as a strong regulation is inefficient if the enforcement environment is weak, i.e., if the regulation is not enforced as intended (Holthausen, 2009; Jackson and Roe, 2009; Humphery-Jenner, 2013). This point can be illustrated with an example of the enforcement sanctions (imposed by enforcers) that may be

measured in a 'rule of the book' enforcement index (for example, La Porta et al. 2006) versus an actual applied enforcement index (that of Johansen et al. 2018) index. La Porta et al. (2006) measure sanctions as the possible sanctions available. The Johansen et al. (2018) enforcement index measures the available action and whether these actions have been utilised by the enforcers. Consequently, the index measuring actual applied enforcement provides a more accurate and nuanced measurement of enforcement.

6.2.1 Differences between the 'rule of the book' and actual applied enforcement indices

The importance of applying an appropriate measure of enforcement has been discussed and exemplified by Jackson and Roe (2009). Jackson and Roe (2009) create three resource-based public enforcement measures and compare them to the 'rule of the book' public enforcement measure created by La Porta et al. (2006). La Porta et al. (2006) investigate how securities laws affect the development of the stock markets and find that laws mandating disclosures and facilitating private enforcement through liability rules strongly benefit the development of the stock markets. Furthermore, La Porta et al. (2006) find that public enforcement plays only a modest role in the development of stock markets. In a comparative analysis, Jackson and Roe (2009) show both that public enforcement, based on the three resource-based enforcement indices, is associated with deeper securities markets and that private enforcement and liability rules do not significantly help develop the stock markets, which is the opposite of what La Porta et al. (2006) finds.

The challenges of enforcement indices based on the 'rule of the book' and the practical application of that rule is also examined by Armour et al. (2009), who perform a comparative quantitative analysis of the enforcement of corporate law between the UK and the US, both of which are common-law countries with strong securities markets. Armour et al. (2009) find that directors in the UK are significantly less likely to be sued than in the US and that private enforcement of corporate law may not be crucial for strong stock markets. Furthermore, they observe that in some important ways, the formal UK rules provide a more potent protection for the shareholders than the US rules, but that the UK rules emphasise ex ante

enforcement rather than ex post litigation. This means that the UK appears to apply a persuasion enforcement strategy, whereas the US appears to apply a deterrence strategy.

On a similar note, Mahoney (2009) documents the importance of measuring the actual enforcement of the rules rather than the 'rule of the book'. He does this by illustrating how an amendment in an interpretation of Rule 23 (regulating class-action law suits in the US) in 1966 changed the premise of class-action lawsuits. This changed interpretation made it possible, without changing the formal rules, to reach a settlement and thus avoid an actual trial. Consequently, the nominal plaintiffs faded into the background and class actions evolved into a negotiation between plaintiffs' counsel and the defendant in which the primary issue was the price the defendant is willing to pay to prevent future lawsuits. This and similar minor changes probably would not have been captured by enforcement measurements based on the 'rule of the book' (Mahoney, 2009). These studies clearly show that the measurement of enforcement influences the end results of the performed analysis.

However, these studies only capture one aspect of the problem, as existing enforcement indices also fail to consider the effects of different enforcement strategies. Different enforcement strategies have a perceivable impact on how enforcers act, behave and use the available enforcement options when performing enforcement activities, as indicated by Armour et al. (2009). Therefore, an accurate measurement of financial reporting enforcement must also consider enforcement strategy. This is attempted the enforcement index in article 1, as it not only captures relevant aspects of the formal rules and their practical application but also considers the applied enforcement strategy.

6.3 Materiality

Materiality assessments are made throughout the preparation of the financial report and concern decisions about recognition, measurement, disclosures and presentation. Consequently, the use of materiality assessments is pervasive and has a substantial impact on the information made available to the users of the

financial report. For this reason, materiality assessments must be made with due consideration to how information reasonably could be expected to influence the decisions of current and potential capital providers (primary users) (IASB 2010, 2017, FASB 2015). Even so, the impact of materiality assessments on the financial report has received little attention in the academic literature. This is strange because studies indicate that users are struggling with the concept (ESMA 2012). Preparers, auditors and regulators are also criticised for not applying the materiality assessment correctly, which causes the financial reports to become complex and opaque, especially in regard to disclosures (FRC 2009, 2011, ESMA 2011, 2012, IAASB 2012, IASB 2013, 2015a, 2015b).

The second paper investigates whether preparers apply a materiality assessment and how that assessment influences their disclosure decisions with respect to mandatory disclosures. This is done by estimating the quantitative materiality threshold for the individual firms in the sample and comparing it with the firm's level of compliance with the mandatory disclosures of IAS 36. I acknowledge that this method introduces several problems, especially for the materiality assessment of disclosures, which are less suited for assessment based on a predetermined threshold (IASB 2010, 2017). The reason for this is that disclosures may be purely descriptive and/or explanatory in nature and have a book value of zero, which all are assessed poorly against a predetermined threshold. Even so, the existing literature indicates that preparers, auditors and regulators often assess materiality based on different quantitative thresholds (Iskandar and Iselin 1999, Iselin and Iskandar 2000, Gleason and Mills 2002, Eilifsen and Messier 2014, FASB 2015, Christensen and Ryttersgaard 2016). Iselin and Iskandar (2000) find that auditors apply higher thresholds for disclosed items than for recognised items. Christensen and Ryttersgaard (2016) find that the preparers primarily focus on quantitative measures, including the absolute amount, when making their disclosure decisions. Gleason and Mills (2002) observe that the level of disclosures for contingent tax liabilities increases with the amount of the tax claim, which indicates that the absolute amount is used to assess the

materiality of the tax claim. Consequently, the applied measurement of the materiality assessment utilised in the second article is in line with how preparers, auditors and regulators have been found to apply the materiality concept in practice.

Although the applied measurement is in line with the prior literature, it does deviate from the ideal materiality assessment measure for disclosure. This measurement would focus significantly more on the qualitative considerations of the assessment than on the quantitative thresholds. A more qualitative-focused measure is not applied because that would require access to privileged information to assess whether undisclosed information is immaterial or should have been disclosed. However, it is believed that the quantitative threshold applied by preparers, auditors and regulators is a fair proxy for the materiality of an item. This is considered to be especially true when measuring the disclosure materiality of impairment tests. The reason for this is that several of the disclosure requirements of IAS 36 relate to the premises of performing the impairment test, i.e., information about the discount rate, growth rate, etc., rather than the actual impairment charges. Consequently, the absolute and relative size of the line items should have a direct impact on the number of disclosures provided by firms. In this regard, goodwill is particularly important, as impairment charges must be offset against goodwill before other assets in the cash generating unit (CGU) (IAS 36.104a) and because goodwill must be tested for impairments at least once a year.

6.4 Auditors' auditing efforts and limitations on auditors' liability

Auditors provide independent assurance of the credibility of the financial information in financial reports, thereby improving resource allocation and contracting efficiency, which means that auditors have a significant influence on the value users attach to the financial report (DeFond and Zhang 2014). However, these users only attach value to the auditors' work if they expect the audit to be performed in accordance with the Generally Accepted Auditing Standards (GAAS) and the auditors can compensate for potential

losses caused by a poorly performed audit. However, auditors will only accept an audit engagement if the engagement risk is assessed as acceptable (Knechel et al. 2007). The engagement risk originates from three sources: reputational risk, regulation risk and litigation risk.

Reputational risk represents the risk that an auditor's reputational capital is impaired, which will reduce his ability to attract new clients and retain existing clients. Building reputational capital is time consuming and costly, as the auditor's reputation can only be built slowly over time (DeFond and Zhang 2014). Therefore, large reputational capital provides the auditors with an incentive to deliver high-quality audits, which may not only increase the auditor's reputational capital but also reduce the risk of impairing it. Regulation risk is the risk of regulatory intervention that subjects auditors to sanctions, including fines and criminal penalties. The auditor may counter this risk by lobbying against such regulatory changes. Litigation risk exposes the auditor to financial penalties from damage claims and has the potential to ruin both the audit firm and the auditor. Prior studies suggest that auditors may reduce their exposure to these three types of risk by 1) increasing the audit quality by making additional audit efforts, 2) bearing the risk by charging a risk premium (which is used to cover potential fines and lost future earnings from an impaired reputation), 3) avoiding the risk through client retention and acceptance, and/or 4) reducing the risk through lobbying for reduced legal liability. The three types of risks are not independent of each other, as financial penalties are likely to result in some impairment to reputational capital (DeFond and Zhang 2014).

It has previously been debated whether limitations on the auditor's liability will affect the value of the audit (London Economics 2006, EC 2007). Whereas the majority of auditors believe that limitations on the auditor's liability will not affect how the audit is performed, users appear to have a different opinion, as 45% of institutional investors believe that financial reports audited under a regime with limited auditor liability will provide a less true and fair view (London Economic 2006). This view is especially strong in countries with limitations on the auditor's liability, as 51% of the preparers in these countries believe that

financial reports provide a less true and fair view. Prior studies suggest that auditors charge a risk premium in countries without limitations on the auditor's liability (Taylor and Simon 1999, Fargher et al. 2001, Choi et al. 2008, DeFond and Zhang 2014). However, none of these studies consider the effect of financial reporting enforcement or the enforcement of auditors.

Article three investigates how audit efforts are affected by enforcement of and limitations on the auditor's liability. Audit efforts are proxied by the size of the audit fee. This is not the ideal measurement of the audit efforts but is the best available proxy. The ideal measurement of audit efforts would be the number of hours used by the auditor on the individual firms, but this information is not available.

7 Research methods and data

Methodology refers to the techniques and tools used to conduct research. A significant part of the dissertation is based on primary data, as existing data are inadequate to perform the necessary analysis. The primary data are collected by using document analysis and surveys and are supplemented with data from large public databases such as DataStream and Worldscope.

7.1 Survey

A survey methodology was used in the first article to analyse variations in financial reporting enforcement across the European countries. The survey responses are also used to create three enforcement indices, which are used to analyse how well the enforcement indices applied in the accounting literature capture the different characteristics of financial reporting enforcement. Existing enforcement indices are largely based on formal rules rather than the actual application of these rules (Coffee 2009, Holthausen 2009, Jackson and Roe 2009, Mahoney 2009, Humphery-Jenner 2013). The data needed for this analysis require insights into how actual financial reporting enforcement is conducted; these data are not readily available

from existing papers or databases. The most obvious way to obtain these data is by surveying the people who are involved in the actual enforcement process.

Two survey instruments were developed in the form of questionnaires; they were designed to capture information about both the formal rule and its actual application. The questionnaires were developed based partly on an analysis of the existing financial reporting enforcement literature and partly on discussions with a senior employee from a regulatory authority and a senior regulatory specialist from a Big 4 accounting firm (henceforth referred to as insiders). The questionnaire is based on partially closed-ended questions with unordered response categories. It is believed that this provides an adequate range of answers while making the coding of the responses manageable. Both questionnaires were pretested and commented on by the insiders, who also provided valuable and constructive feedback that helped make the questionnaires shorter and more focused.

The surveys were conducted in accordance with the tailored design method (TDM) (Dillmann et al. 2009) and executed from March to June 2013. Our insiders helped us identify respondents within the individual countries and enforcement authorities while also championing the survey within their networks, i.e., ESMA and the Big 4 accounting firm. The survey was performed as a mixed model, as some of the respondents preferred to be interviewed rather than fill in an e-survey. These respondents were contacted by phone, and an interviewer read out the questions and noted the answers of the respondent. In an attempt to increase our response rate, we sent letters to the respondents shortly before the start of the survey and reminders during the time span of the survey. Finally, follow-up interviews were conducted where respondents had left questions unanswered. If a respondent was unable to answer the question, we attempted to answer it based on publicly available information. The question was left unanswered if we were unable to identify a plausible answer.

The first of the two survey instruments was sent to enforcement bodies in 29 European countries covering approximately 88% of the population (33 countries). We received useful responses from 17 enforcement bodies, which equal a response rate of 59% on a country level and 52% on an enforcement-body level. The different response rates are because four countries have more than one body that enforces compliance with financial information. In these instances, one enforcement body typically focuses on financial institutions, while the other focuses on all other entities, or one enforces auditors while the other enforces issuers of financial information. Respondents have been selected based on a two-step process. First, the relevant enforcement body is identified. Some of the formal responsible enforcement bodies have chosen to delegate actual enforcement to other governmental agencies. This means that they are not involved in the practical aspects of enforcement. Consequently, the respondents have been selected from bodies that perform the actual financial reporting enforcement to ensure that the respondent is knowledgeable about how enforcement is performed. Second, the respondent must be a senior enforcement official because this, *ceteris paribus*, ensures that the respondent has a broad and deep knowledge of both the formal and the actual enforcement process. A list of potential respondents was developed by the researchers based on publicly available information. The list was discussed with the insiders, who added both new candidates and valuable comments to the existing candidates. The final list of respondents was then completed by the researchers.

The second survey instrument was sent to senior regulatory experts from a Big 4 accounting firm for the same 29 European countries, and we received responses from all 29 countries. The purpose of this survey was slightly different, as the questions were designed to measure how the enforced entities, represented by senior regulatory experts, experience the performed financial reporting enforcement. Furthermore, the second questionnaire is primarily used to verify and authenticate the responses received from the enforcement bodies. Consequently, the questionnaire covers the same areas, but the questions were

phrased differently. With the second questionnaire, we risk receiving biased responses, as all the respondents are from the same network, which means that they may express firm policy rather than enforcement as it is actually applied. However, this risk is considered to be minor, as the information is primarily used to verify the responses of the enforcement bodies.

The enforcement indices are primarily based on the questionnaire sent to the enforcement bodies, but have been supplemented with questions from the second questionnaire that provides information not covered by the first questionnaire or when there is a discrepancy between the answers to a similar question. Consequently, it is believed that the indices capture financial reporting enforcement as it is actually performed and thus provide fair and true picture of enforcement.

7.2 Archival data

The analysis of articles two and three are based on cross-sectional data partially retrieved from hand-collected data sources and partially retrieved from large public databases such as DataStream and WorldScope. Although data retrieved from large public databases are considered reliable and trustworthy, a few additional comments must be added to the hand-collected data.

7.2.1 Level of compliance with mandatory disclosures

The level of compliance with mandatory disclosures is based on firms' compliance with the disclosure requirements of IAS 36 – Impairment of Assets. This standard was chosen both because preparers find it challenging and because it has been a focus area for European enforcers (Glaum et al. 2013, ESMA 2014a, 2014b, 2015). The level of compliance with mandatory disclosures is used as the independent variable in article 2 and is hand collected. The collection process for the data is described in the article, but a few additional comments are added. First, the analysis of financial reports was limited to the definition of a financial statement (IAS 1.10³). This means that the management review has not been subject to a detailed

³ According to this definition, a complete set of financial statements comprises the following:

analysis. Firms may have disclosed the required information outside the financial report, meaning that it has not been considered in the analysis. Second, the mandatory disclosure requirements listed in IAS 36 are not explicit in what they actually require firms to disclose. Consequently, the disclosure requirements may have been misinterpreted by the researcher and research assistants. To avoid misinterpretations of the disclosure requirements, the individual requirements have been compared both to the disclosures provided in the illustrative IFRS statements prepared by the Big 4 accounting firm (KPMG 2014, EY 2014, PwC 2014b, Deloitte 2014) and to the other relevant literature (PwC 2014a, Fedders and Steffensen 2012). This was done to establish a benchmark of which information the individual disclosures actually required. Naturally, it is not expected that the firms' financial reports exhibit the same level of quality or detail as the illustrative financial reports from the Big 4 auditing firms, as the purpose of the illustrative financial reports are to inspire and guide other firms as to how they may present their disclosures and thus can be considered to represent the 'state of the art'. However, they have been used to obtain a better understanding of the individual disclosure requirements in IAS 36. Based on these assumptions and the precautions taken, it is my belief that the estimated level of compliance is accurate.

7.2.2 Audit fees

The dependent variable in the third article is audit fees, which are also collected by hand because I did not have access to the relevant databases. The data collection was fairly simple, as it only required the use of judgement when it was not immediately apparent whether the fees related to the parent company or the

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- a) a statement of financial position as at the end of the period;
 - b) a statement of profit and loss and other comprehensive income for the period;
 - c) a statement of changes in equity for the period;
 - d) a statement of cash flows for the period;
 - e) notes comprising significant accounting policies and other explanatory information;
 - ea) comparative information with respect to the preceding period, as specified in paragraphs 38 and 38A (comparative figures); and
 - f) a statement of financial position as at the beginning of the preceding period when an entity applies an accounting policy retrospectively or makes a retrospective statement of items in its financial statements, or when it reclassifies items in its financial statement in accordance with paragraph 40A-40D (changes in accounting policy, retrospective restatement or reclassification) (IAS 1.10).

group. However, this problem was also fairly easily settled, as information about the group's total audit fees (including audit fees, non-auditing services, tax services and other services) to the auditor were available from Datastream. The hand-collected audit fees (including all other services) were compared with the figures from Datastream, and differences in excess of 5% were investigated and resolved. The differences were usually caused by a switch of the audit fee between the group and parent company.

8 Presentation of findings

The articles have explored different aspects of financial reporting enforcement, materiality, the enforcement of auditors, auditors' auditing efforts and auditors' liability. The findings of these explorations are summarised below.

8.1 Enforcement

To explore how enforcement varies among the European countries, it has been necessary to develop three enforcement indices that capture the various enforcement strategies⁴. Six key characteristics are identified as important for effective financial reporting enforcement, and the three enforcement indices are modelled based on these six key characteristics. The six characteristics⁵ are as follows: Independence, scope of enforcement, enforcement approach, sanctions and the ability to impose these sanctions on non-performers, publishing of guidance and decisions, and interaction with stakeholders. The applied enforcement may emphasise different aspects of the six characteristics. Consequently, three enforcement

⁴ The three enforcement strategies are the deterrence strategy, the persuasion strategy and a mix of the deterrence and the persuasion enforcement strategies (total enforcement).

⁵ Independence aims to ensure that the enforcers are independent from the stakeholders (for example, governments, auditors, market participants, preparers and users of financial reports, etc.). Scope of enforcement is needed because it clarifies and defines what the enforcers must enforce.

The enforcement approach helps ensure consistent enforcement with regard to performing the actual enforcement (the enforcement follows similar principles) and evaluation of infringements and imposed sanctions.

Sanctions and the ability to impose them on non-performers make it possible for enforcers to punish non-compliers using various sanctions and penalties.

Publishing of guidance and decision refers to the need for enforcers to publish information about their activities, guidance and decisions.

Interaction with stakeholders enables enforcers to dialogue with the enforced entities and provide pre-clearance.

indices have been created that capture different enforcement strategies. Two of the enforcement indices are based on the two archetypes of enforcement strategy (deterrence and persuasion), whereas the third is based on a mix of the two (responsive enforcement).

The analysis finds variation in the strictness of financial reporting enforcement across the European countries and that the countries emphasise different aspects of enforcement, which is expected because of differences in institutional settings. However, some countries consistently engage in stricter enforcement, disregarding the chosen enforcement strategy, which indicates a generally strict enforcement environment of financial reporting. The three enforcement indices do not generally correlate with existing enforcement indices. This is not entirely surprising, as many of the existing indices are created for purposes other than the enforcement of financial reporting. However, it is surprising that indices specifically created to measure financial reporting enforcement (Brown et al. 2014) exhibit a similar lack of correlation. The reason for the lack of correlation between the three enforcement indices and the Brown et al. (2014) enforcement index is that Brown et al. (2014) capture the breadth and depth of actual enforcement only to a limited extent.

8.2 Enforcement and materiality assessments on mandatory disclosure decisions

In article two, the three enforcement indices created are used to analyse the effect of financial reporting enforcement on the materiality assessment and the disclosure decisions for mandatory disclosures. The results show that the strictness of the enforcement has both a positive and a significant influence on the level of compliance with mandatory disclosures if the applied enforcement strategy is either a mix of the deterrence and the persuasion strategies or the deterrence strategy only. Enforcement based on a persuasion strategy appears ineffective in securing compliance with mandatory disclosures. Furthermore, the results show that the level of disclosures is significantly lower when goodwill is immaterial, whereas the level of disclosures is insignificantly different once goodwill is material. In other words, the absolute and

relative size of goodwill does not influence the level of disclosures once goodwill is material. This result provides a clear indication that firms perform a materiality assessment when they decide to disclose mandatory disclosures. Finally, this study finds that strict enforcement does not influence the materiality assessment of the firms, which means that financial reporting enforcement does not influence the firms' materiality assessments.

8.3 Financial reporting enforcement, enforcement of auditors and limitations on the auditor's liability

The enforcement index created is also used to investigate how the strictness of enforcement impacts the audit efforts of the auditor while considering possible limitations on the auditor's liability. The analysis finds that strict financial reporting enforcement has a negative and significant influence on the audit efforts, disregarding the applied enforcement strategy. This indicates that auditors apply less audit effort when financial reporting is strict because strict enforcement causes preparers to deliver a higher-quality financial report. Consequently, the auditor must perform fewer audits before he has achieved the desired level of assurance. However, strict enforcement of auditors (proxied by a modified Brown et al. 2014 audit measure) causes them to make significantly more auditing efforts if the enforcement of auditors is weak. These additional auditing efforts are most likely caused by the auditor's attempt to hedge against the increased risk of penalties and/or reputational losses derived from the increased strictness of enforcement. Prior studies have found mixed results on how limitations on the auditor's liability impact the applied audit efforts but provide an overall conclusion indicating that liability limitations reduce the audit efforts of the auditor. This thesis finds that limitations on the auditor's liability significantly reduce the efforts of the auditor. However, robustness tests indicate that the effects of limitations on the auditor's liability are highly susceptible to the enforcement environment of financial reporting because financial reporting enforcement based on an enforcement strategy of either deterrence or persuasion reduces the effect from

significant to insignificant, i.e., limitations on the auditor's liability do not impact the applied auditing efforts. Consequently, it appears that the impact of limitations on the auditor's liability depends upon the enforcement strategy applied.

9 Contribution and implications

The findings of this thesis may not provide clear-cut answers that enable decision-makers to make more enlightened decisions about the future allocation of resources to enforcement, which enforcement activities are directly harmful to the transparency and comparability of the financial reports or which enforcement strategy and enforcement strategies provide the optimal level of enforcement for a given country. However, it does provide a few new pieces to the puzzle, thereby bringing us one step closer to making such decisions. In this regard, this thesis makes several contributions, which are discussed below.

9.1 Enforcement

The thesis provides insights into how financial reporting enforcement is actually carried out in Europe. This is particularly interesting for academia because it questions the relevance of the indices used in the literature and thereby questions the validity of these results. Therefore, future studies must carefully consider the applied enforcement indices and whether these indices actually measure the subject of interest. Regulatory authorities in Europe should also be interested in the results because they indicate heterogeneous financial reporting enforcement, which is opposite of the ambition of ESMA. The results may be used to identify areas with variation and those in which harmonisation efforts may occur. However, it is important to note that totally aligned enforcement is undesirable because of the differences in the institutional settings. Applied financial reporting enforcement must duly consider the institutional setting of the individual country and ensure that it can operate effectively within that setting. The results also have implications for the issuers and users of the financial report. Enforcement has a direct impact on the interpretation of laws and standards, which means that national variations in financial reporting

enforcement increase the complexity of issuing a financial report. This is especially true if the issuers are listed on multiple exchanges in different countries, which may result in additional burdens. Likewise, the users must address variations in enforcement when they assess and evaluate financial information

9.2 Enforcement and materiality assessments on mandatory disclosure decisions

This thesis also contributes to the existing literature on enforcement by finding that strict enforcement is a significant determinant to the level of mandatory disclosures, as firms located in countries with strict enforcement exhibit a significantly higher level of compliance. This should be of interest to enforcers, thereby causing them to increase their cross-border cooperation and intensify their work to achieve a more homogeneous and uniform supervision of accounting regulation. Furthermore, enforcement based on either deterrence or a mix of deterrence and persuasion enforcement strategies appear to be better at ensuring a high level of compliance with mandatory disclosures. This finding should make enforcers consider whether the applied enforcement strategy is capable of ensuring the desired results. Furthermore, capital market participants are directly affected, as the findings confirm the uneven application of the accounting regulation, thus reducing the transparency and comparability of the financial reports. Market participants must therefore be forced to invest additional resources when analysing financial reports from countries with weak enforcement.

This study also contributes to the literature on materiality, as it finds that preparers apply a materiality assessment when making decisions about mandatory disclosures. Further, it is found that firms provide significantly more disclosures when items are material than when items are immaterial, and the level of disclosures is insignificantly different once the item is considered material. This finding is of interest to the users of the financial report, as they are assured that preparers focus on providing information about the material items in the financial report. This finding is also of interest for the enforcers, especially if it is

coupled with the finding that enforcement does not appear to influence the preparers' materiality assessment. This means that enforcers may increase the strictness of the performed enforcement without fearing that it will increase the complexity and opacity of the financial report, as suggested by some studies.

9.3 Financial reporting enforcement, enforcement of auditors and limitations on the auditors' liability

Finally, the thesis documents that the institutional setting directly affects the auditors' auditing efforts, as audit efforts decrease with the combination of strict enforcement of financial reporting, limitations on the auditors' liability and weak enforcement of auditors. This finding contributes to the existing literature, which primarily focuses on a single country setting and therefore, has investigated the effects of enforcement only to a lesser degree. The findings have direct implications for the regulatory authorities, as they must consider whether the current liability structure for auditors can satisfactorily ensure the desirable behaviour of the auditors, especially considering that different enforcement strategies for financial reporting appear to significantly influence the auditors' auditing efforts with respect to this issue. Furthermore, this study has implications for the users of the financial statement, as they must evaluate whether the performed auditing efforts provide them with the required level of assurance or whether they must perform additional information gathering and analysis before they can trust the information.

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11 Articles

The thesis consists of the following articles:

Article # 1 – Survey of European Financial Reporting Enforcement

Article # 2 – The impact of enforcement and materiality assessments on firms’ mandatory disclosure decisions

Article # 3 – The impact of enforcement and limitations to the auditors’ liability on audit efforts

Survey of European Financial Reporting Enforcement

Thomas Riise Johansen
Copenhagen Business School

Carsten Allerslev Olsen*
Copenhagen Business School

Thomas Plenborg
Copenhagen Business School

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Abstract

This paper analyses how the strictness in financial reporting enforcement varies across 17 European countries and the extent to which enforcement proxies in the existing accounting literature reflects the actual performed financial reporting enforcement. Based on survey responses from European enforcement bodies and regulatory specialists, the study observes extensive variations in the strictness of financial reporting enforcement across the European countries, despite ESMA's efforts to achieve more homogeneous enforcement in Europe. Furthermore, existing enforcement indices used in the accounting literature do not generally correlate with the enforcement index developed in this study, which begs the question of what the existing enforcement indices of financial reporting are measuring.

Keywords: Financial reporting, Financial reporting enforcement, Enforcement; Regulation

Introduction

The accounting literature has increasingly focused on identifying the effects of financial reporting enforcement (Lambert et al. 2007, Daske et al. 2008, 2013 Bushman and Landsman 2010, Moran 2010, Aerts and Tarca 2010, Byard et al. 2011, Wysocki 2011, Christensen et al. 2013, Leuz and Wysocki 2016, Tsalauotas et al. 2014). The results of these studies are mixed but the emerging explanation appears to be that enforcement enhances the benefits of adopting a set of high quality accounting standards and thus ensures the capital market effects of accounting. The enforcement proxies utilized by these studies, however, face two significant challenges.

First, the enforcement proxies rely heavily on the formal power (rule-of-the-book) of enforcers to investigate and sanction (Coffee 2009, Holthausen 2009, Jackson and Roe 2009, Mahoney 2009, Humphery-Jenner 2013). This essentially means that the proxies are measurements of the formal regulation rather than the actual performed enforcement. This is a serious drawback as research indicates that the key issue in enforcement is not only whether enforcers have formal powers but also whether they actually exercise these powers (Jackson and Roe 2009, Humphery-Jenner 2013). Second, several enforcement proxies applied in prior literature are only indirect measures of financial reporting enforcement and some were even created to measure other items, such as the enforcement of shareholder and creditor protection (La Porta et al. 1997, 1998), minority shareholder protection (Djankov et al. 2008), investor protection (Jackson and Roe 2009) or the general legal environment (Kaufmann et al. 2014). While the existing literature has contributed to shaping the understanding of how institutional settings influence financial reporting outcomes, it does raise questions about the degree to which they capture enforcement of financial reporting.

The aim of this study is not to create new enforcement proxies for financial reporting, although we do so in the process, but more modestly, to measure how actual enforcement varies across the European countries as well as to show whether existing proxies grasp this variation.

The study begins by discussing the concept of enforcement and identifies six key characteristics of effective enforcement: independence, scope of enforcement, enforcement approach, sanctions and the ability to impose these on non-performers, transparency and public availability of guidance and decisions, and interaction with stakeholders.

To obtain a better understanding of financial reporting enforcement in Europe, we conduct a survey based on responses from national enforcement bodies and senior regulatory specialists from a Big Four accounting firm. The questionnaire covers both the formal rules and the actual performed enforcement. The study therefore provides unique insights into how enforcement is conducted, which, to our knowledge, no other study has provided. This allows us not only to compare how financial reporting enforcement is carried out in Europe but also to provide insights into how well previous financial reporting enforcement proxies capture enforcement. We use the six key characteristics as a frame for how financial reporting enforcement may be understood, and on that basis, we draw out items that indicate the level of strictness in enforcement. These items are then related to two distinct strategies of enforcement: deterrence and persuasion.

Our results indicate great variation in the strictness of financial reporting enforcement in Europe. Furthermore, the enforcement indices used in prior studies do not seem to capture how financial reporting enforcement is carried out. As Brown et al. (2014) is the only index specifically designed to capture financial reporting enforcement, it is surprising that we find no correlation between their enforcement index and our indices. A closer look at the Brown et al. (2014) enforcement index shows that it primarily captures the

formal rules of enforcement and that the items constituting the index do not provide details on how the actual performed financial reporting enforcement is carried out.

This study makes several contributions to the body of literature and current thinking on enforcement. First, we expose the variation in the strictness of financial reporting enforcement in Europe. This finding should be of interest to ESMA and other enforcement bodies as variations in the strictness of financial reporting enforcement are not in line with ESMA's aspiration of homogenous enforcement in Europe (ESMA 2015). Our findings can be used to identify areas where enforcement bodies must align effort if the ambition is homogenous enforcement in Europe. Second, we believe this is the first study to empirically show that existing enforcement proxies used in the accounting literature are relatively poor in capturing the variations in the strictness of financial reporting enforcement across European countries. This suggests that future studies should be careful in using existing enforcement indices and that a new and more accurate financial enforcement index should be developed to capture variations in how enforcement is conducted across countries.

The remainder of this paper is organized as follows. In Section 2, we outline financial reporting enforcement. Section 3 examines the different enforcement proxies used in the literature. Section 4 discusses the survey used to collect enforcement data across European countries. In Section 5, the empirical results are presented and a comparison to prior enforcement indices is made. Section 6 presents the study's conclusions.

Financial Reporting Enforcement

In this section, we discuss financial report enforcement from two perspectives: the characteristics of financial reporting enforcement and the enforcement strategies that enforcement bodies can adopt.

Key characteristics of financial reporting enforcement

Enforcing regulations involves a range of activities and tools designed to monitor, inspect, punish, guide and encourage compliance with rules (FEE, 2002; Basel, 2012; ESMA, 2014; IOSCO, 2013; OECD, 2014b; SEC, 2016a). In this section, we summarize these tools and activities into six key characteristics that are seen as associated with effective financial reporting enforcement: independence; scope of enforcement; enforcement approach; sanctions and the ability to impose these on non-performers; transparency and the public availability of guidance and decisions; and interaction with stakeholders.

Independence

Independence is widely seen as a requirement for an effective enforcement body, because it provides greater confidence in regulatory decisions (FEE, 2002; Basel, 2012; ESMA, 2014; IOSCO, 2013; OECD, 2014a; OECD, 2014b). Independence entails that the enforcement body is not influenced by governments, auditors, issuers of financial information or market participants and that the enforcement body has sufficient resources to ensure that issuers of financial reporting comply with IFRS (FEE, 2002).

Scope of enforcement

A clear scope of the financial information to be enforced is important for effective enforcement. FEE (2002) suggests the scope of financial reporting enforcement should be limited to the consolidated financial statements and only include documents prepared under IFRS and documents providing price-sensitive financial information for the capital markets. ESMA (2014) agrees with this view and proposes enforcing all financial information in harmonized documents.⁶ The scope of enforcement also extends to clear guidelines on what materials enforcers may use during their enforcement visits and thus also establishes a boundary for enforcement.

⁶ A document is considered to be harmonized if its publication is required by the Transparency Directive. Harmonized documents contain financial information from issuers listed on a regulated market (ESMA 2014). Thus, harmonized documents include annual and interim financial statements and reports prepared on an individual and consolidated basis.

Enforcement approach

The establishment of policies to ensure consistent enforcement is seen as a prerequisite for effective enforcement, although enforcement guidelines and frameworks are not explicit on how this should be implemented (Basel, 2012; IOSCO, 2013; ESMA, 2014; OECD, 2014b; SEC, 2016b). The aim of consistent enforcement is for similar infringements to be evaluated by similar measures and punished with similar sanctions across issuers. In addition, guidance suggests that it is important to monitor the activities under enforcement with a risk-based and forward-looking perspective as well as to identify focus areas that represent the priorities of enforcers.

Sanctions and the ability to impose these on non-performers

Assigned powers to conduct inspections of accounts must be complemented by a sanctioning system to punish non-compliance (FEE, 2002; Basel, 2012; IOSCO, 2013; ESMA, 2014; OECD, 2014b; SEC, 2016a). ESMA (2014) states, that sanctions include reissuance of the financial statement and a corrective note or correction in future financial statements with restatement of comparatives. OECD (2014b) extends possible sanctions to include criminal prosecution and further stresses the importance of keeping sanctions proportionate to infringements.

Transparency and public availability of guidance and decisions

Both FEE (2002) and IOSCO (2013) relate effective enforcement to the publication of guidance to ensure consistent and transparent enforcement, not only in regard to the enforcement activities but also in regard to the enforcement decision reached. OECD (2014b) further suggests that enforcers develop and publish guidance in the form of notes, toolkits, checklists, and so on, which must be easily accessible and comprehensible. ESMA (2014) recommends that enforcement bodies periodically issue a report containing a description of the performed enforcement activities, either with or without individual enforcement cases and with or without identification of the enforced entity. This is also current practice in the US, where the

SEC publishes an annual statement on examination priorities and interpretive guidance (SEC, 2016a; 2017) and further holds conferences with industry and securities regulators, both regionally and nationally.

Interaction with stakeholders

There seems to be some variation in how organizations and regulators that provide guidelines for enforcement allow for the prevention of infringements through interacting with entities under enforcement and other stakeholders. FEE (2002) and Basel (2012) argue that the purpose is to prevent errors and material misstatements in financial reporting, while others stress preventive measures such as the possibility of interaction with the enforcement bodies and the use of pre-clearance (IOSCO, 2013; OECD, 2014b). ESMA (2014), however, appear to consider the enforcement activity to be an ex-post activity by nature and does not recommend or reject the use of pre-clearances.

Enforcement strategies

Enforcement bodies may emphasize different aspects of the six characteristics depending upon the chosen enforcement strategy. According to the literature on law and economics, enforcement bodies may choose between two distinct enforcement strategies, or a mix of these (Ayres and Braithwaite 1992, Baldwin and Cave 1999, Baldwin et al. 2010, 2012). The 'deterrence' strategy enforces compliance through the use of penalties and prosecution. The penalties applied are usually severe and include sanctions such as criminal sanctions, license suspension and license revocation (Ayres and Braithwaite 1992, Baldwin et al. 2010, 2012). The second enforcement strategy is the 'persuasion' strategy, which enforces compliance through dialogue, encouragement and education (Ayres and Braithwaite 1992, Baldwin et al. 2010, 2012). The deterrence strategy tends to emphasize the *detection* of misconduct and the persuasion strategy tends to emphasize the *prevention* of misconduct. Finally, enforcement bodies may choose to mix the two enforcement strategies in an attempt to achieve a more flexible and agile enforcement. The mix of

enforcement strategies is referred to as ‘Responsive enforcement’ in the literature. The ‘Responsive’ enforcement strategy may be specifically implemented as a ‘tit for tat’⁷ enforcement approach.

Enforcement Indices Developed in the Literature

This section examines how prior studies measure enforcement and the extent to which the adopted measures capture financial reporting enforcement. The number of studies that examine the impact of enforcement on financial reporting quality has grown significantly over the last decade, but researchers do not seem to agree on a common measure for financial reporting enforcement. In fact, a wide number of financial reporting enforcement indices have been used. These indices are summarized in Table 1.

[Insert Table 1 about here]

Most enforcement indices used in the accounting literature are legally oriented, capturing some elements of a country’s legal system, security law or governance system. La Porta et al. (1998) develop an index covering legal rules pertaining to the rights of investors and the quality of enforcement of these rules. La Porta et al. (2006) assemble a database of rules and regulations governing security issuance with a focus on mandatory disclosure, liability standards, and public enforcement. Kaufmann et al. (2014) is a governance index with six dimensions. One of these dimensions (Rule of Law) is the perception of the general enforcement environment and has been used as a proxy for enforcement. A measure of legal protection of

⁷ The ‘tit for tat’ approach refers to an enforcement approach where the enforcers initiate the enforcement process by applying the persuasion strategy, i.e., (s)he tries through dialogue, encouragement and education to make the enforced entity comply. If the enforcer is unsuccessful in achieving compliance through these measures, (s)he will switch to a deterrence strategy by applying punitive measures against the enforced entity. These punitive measures will start with warning letters that will escalate up to through the enforcement pyramid to criminal sanctions or license suspension and revocation if the enforced entity remains non-compliant. The enforcement pyramid is a hierarchical collection of enforcement tools that escalates from persuasion at the base, to warning letters and civil penalty in the middle to criminal sanctions and license suspension and revocation at the tip of the pyramid (Ayres and Braithwaite 1992).

minority shareholders against expropriation by corporate insiders is suggested by Djankov et al. (2008). Jackson and Roe (2009) develop several measures of the intensity of public enforcement of securities regulation based on the regulators' budgetary resources and staffing levels.

Some studies combine legally oriented indices with an auditing and accounting focus. Hope (2003) combines the index from La Porta et al. (1998) with a measure of how much a country spends on audit services relative to the economy as a whole. The audit measure aims to measure a country's commitment to enforcement of annual reports. The World Economic Forum (2013) develops an investor protection index consisting of different legal measures, including a measure of the strength of accounting and auditing standards.

Brown et al. (2014) present an index designed to capture differences between countries in relation to the institutional setting for financial reporting, specifically the auditing of financial statements and enforcement of compliance with financial reporting regulation. The measurement of financial reporting enforcement is based on six constructs measuring 1) whether a country has a regulatory body; 2) whether it can set standards (both accounting and auditing standards); 3) whether the regulatory body performs a review of issued financial statements; 4) whether the regulatory body publicly reports outcome of their reviews; 5) whether it takes enforcement actions against infringements; and 6) the level of resourcing. The index is created based on publicly available data in the form of surveys performed by FEE and IFAC.

[Insert Table 2 about here]

Table 2 illustrates the extent to which each of the enforcement proxies used in the accounting literature appears to be related to the six key characteristics of enforcement outlined above. The proxies in Hope (2003) and Brown et al. (2014) are the only attempts to measure enforcement of financial reporting.

Nevertheless, these indices only relate, either partly or fully, to five of the six key characteristics of enforcement. This suggests that the existing indices do not capture the breadth of what is perceived to be financial reporting enforcement. Further, existing financial reporting enforcement indices tend to focus on formal rules and none of them include measures of how financial reporting enforcement is actually carried out. This is a significant weakness as a strict set of formal rules may not necessarily translate into strict enforcement in practice, as argued by both Coffee (2007) and Jackson and Roe (2009). Holthausen (2009) also notes that indices tend to focus on whether a rule or requirement exists, whereas the real matter of interest is whether the rule or requirement is applied and how it affects practice. Coffee (2007) argues that enforcement measurements based on inputs and outputs are likely to be superior to measurements based on formal rules. In response to such concerns, we create a financial reporting enforcement index in this study that captures not only the formal rules of enforcement but also how the enforcement is actually conducted.

Methods

In this section, we outline the survey approach, the sample used in this study and the design of the enforcement index.

Survey approach

To assess financial reporting enforcement activities in Europe, we adopt a survey approach to data collection. We develop two survey instruments in the form of questionnaires intended to collect information on the design and operation of national financial reporting enforcement. The topics included in these survey instruments are based on the key characteristics of effective enforcement as discussed above and discussions with a senior employee of an enforcement body, as well as a senior regulatory specialist from a Big Four auditing firm (henceforth referred to as our insiders). First drafts of the two instruments were pre-tested by our insiders. The purpose of the pre-testing was to examine the relevance and

understandability of each question and whether the instrument as a whole captures the relevant aspects of financial reporting enforcement. This led to the deletion, addition and rewording of questions. A pilot test of the modified instruments was performed with additional senior officials from enforcement bodies, senior regulatory specialists, and academic researchers. The pilot-test provided useful feedback on content, understandability and the time required to complete the survey. This feedback led to a reduction in the length and complexity of questions and improved the validity of the responses.

The survey was arranged as an e-survey, but in a few cases the respondents preferred to be interviewed rather than to fill out the e-survey. The interviews were conducted by phone and followed the questionnaire. We further performed follow-up interviews in a few instances where the respondents left questions unanswered.

Survey responses were cross-checked where relevant. For example, responses were compared with publicly available information. Further, the results have been presented for practitioners and regulatory officials and the results have been subject to vigorous debate, but no errors or mistakes were identified during this debate. We believe that these actions together with the general high level of experience of the respondents have helped to ensure a high validity of the received responses.

Sample

In 2013, the survey was mailed to 29 enforcement bodies in Europe (all EC countries and Norway) and 29 senior regulatory specialists from a Big Four accounting firm operating in the same 29 countries. While the survey mailed to enforcement bodies provides insights on formal powers as well as the actual use of these powers, the survey mailed to senior regulatory specialists served two purposes: a) to collect information about design and actual use of enforcement in order to cross-check information received from authorities; and b) to shed light on how actual enforcement is perceived by issuers of financial information.

Enforcement bodies⁸ and regulatory specialists were contacted prior to the survey's distribution. This ensured that respondents were committed and that each questionnaire was sent to senior employees with appropriate positions and experience. To increase the participation of the enforcement bodies that expressed concerns about disclosing confidential information, we agreed to grant them anonymity. We obtained answers from 17 enforcement bodies and 29 regulatory specialists corresponding to a response rate of 59% and 100%, respectively.

Design of enforcement index

The enforcement index consists of six *constructs* representing the six key characteristics, and the questions assigned to each construct are shown in appendix A. The appendix includes rationales and a justification of how they relate to strictness and enforcement strategy. We briefly discuss each of the six constructs.

Independence

Independence builds on three questions measuring different aspects of independence, including the enforcement body's affiliation with other government agencies and a general evaluation of the competence level of the staff involved in enforcement of financial reporting.

Scope of enforcement

Scope of enforcement is based on questions measuring areas of responsibility *within* financial reporting enforcement (review, decision and actions, pre-clearance and informal guidance) and the proportion of issuers that are reviewed on an annual basis. The construct also measures what information enforcers can use during their review.

⁸ In several countries, there is more than one enforcement body. In these countries, we followed the advice of regulatory specialists and only sent the survey to the body that covered most companies.

Enforcement approach

Enforcement approach measures how enforcement is performed and is based on questions such as whether the enforcer identifies specific focus areas for review and whether there are internal available guidelines that ensure a consistent application of enforcement across time and employees.

Actions and sanctions

Actions and sanctions measure the actions and sanctions available to, and actually used, by the enforcement bodies. It is based on questions that measure the types of actions available to enforcement bodies and which actions the enforcement body actually uses. It also measures the extent to which enforcement bodies believe that issuers accept and respond to decisions, actions and sanctions used if issuers do not respond to decisions, and whether issuers believe that sanctions have affected their behaviour.

Transparency

Transparency is measured by items such as publicly available guidelines on enforcement activities, whether enforcers publish focus areas for the following year and how decisions are communicated. The construct also contains measures of how the issuers view these matters.

Interaction with stakeholders

The final construct addresses the opportunities for stakeholders to interact with the enforcement body and thus measures the extent to which enforcement bodies are willing to provide pre-clearances. It also measures whether the opportunities for interaction with the enforcement body are sufficient.

Based on these six characteristics, we also create two sub-indices measuring the degree to which enforcement bodies emphasize a deterrence strategy or persuasion strategy. The two sub-indices consist of questions assigned to the six constructs. In appendix A, there is a justification for whether the questions relate to deterrence, persuasion or both. This implies that the 'deterrence' index is based on the score from questions related to deterrence and the 'persuasion' index is based on the score from questions related to

persuasion. We apply the score from a question to both sub-indices if it relates to both deterrence and persuasion.⁹

Scoring

The enforcement index is assigned a score based on the individual questions within each construct. Scores range from 0 to 1 and higher scores indicate stricter enforcement. The scores of each construct are scaled by the number of answered questions in order to avoid negative bias from unanswered question.¹⁰ We sum the scores of each construct and convert them into ranks, which produces a rank score for each construct ranging from 1 to 17. The ranking neutralizes the impact of different scores across constructs due to different numbers of questions. We then create enforcement indices for each country by adding the rank score of the six constructs. Because it is difficult to argue that some areas of enforcement are more important than others, each construct carries the same weight. A country's enforcement score therefore ranges from a minimum of 6 (6x1) to a maximum of 102 (6x17) for each of the three enforcement indices. The two sub-indices – the 'deterrence' index and 'persuasion' index – consist of the average score from questions across all constructs classified as deterrence and persuasion, respectively. A high score on a sub-index suggests that a country emphasizes that enforcement strategy. Thus, if a country obtains a higher score on the 'deterrence' index than on the 'persuasion' index, it suggests that a country emphasizes the deterrence strategy above the persuasion strategy. Further, if the enforcement indices used in the accounting literature are correlated with the 'deterrence' index but not with the 'persuasion' index, it suggests that these indices focus on the deterrence strategy.

⁹ We also report results excluding the score from questions that relate to both the deterrence and persuasion strategies.

¹⁰ It should be noted that scores from 'combined-questions' are added together and divided by the number of questions within each combined-question in order to avoid including questions covering the same enforcement effect twice. All combined-questions come in pairs, i.e., two questions measuring the same enforcement effect. Combined-questions are marked in both appendix A, and in Table 3.

Empirical Results

In what follows, we discuss the empirical results of the survey. First, we compare financial reporting enforcement in the 17 countries included in the survey, after which we evaluate how well enforcement indices used in the accounting literature capture both formal and actual enforcement. This is done by comparing our enforcement indices with indices used previously in the accounting literature.

Comparison of financial reporting enforcement in 17 European countries

Table 3 reports the results across the six constructs. An examination of the ‘independence’ in Table 3, panel A shows that the enforcement bodies in all countries indicate that they are independent bodies (A1). There are great variations in the number of stakeholder groups involved in the enforcement activities (A2). Four countries include one or fewer stakeholders in the enforcement activities, three countries include six stakeholders and the remaining 9 countries include between two and six stakeholders in enforcement activities. Together, this indicates that few countries are concerned with the legitimacy of enforcement body composition. Furthermore, regulatory specialists score the competence level as high or very high in 12 out of 17 countries (A3). This also means that in five countries, the competence level is viewed as average or below average by the regulatory specialists, which may be due to problems in recruiting and/or retaining staff with the right competencies. According to ESMA (2017), the problem is evident in relation to senior staff due to a larger remuneration gap between the public and private sector. The prospect of a less competent staff with fewer senior people is of concern as it threatens independent thinking and consistency of financial reporting enforcement resulting in lower quality enforcement.

[Insert Table 3 about here]

The scores of the construct ‘scope of enforcement’ are reported in Table 3, panel B and reveal variation in the number of responsibilities *within* the financial reporting area, which vary between three (0.6) and five

(1.0) (B1). All 17 countries are empowered to review financial reporting, make decisions and issue actions, while eight countries may issue pre-clearances and 12 countries may issue informal guidance. All eight countries that may issue pre-clearance also issue informal guidance. Enforcers in all countries draw on publicly available documents in enforcement activities and 12 countries always make use of this option, while only one rarely uses the option (B2). They are also allowed to collect non-publicly available material directly from the issuers. This is an option three countries always use, while the remaining 14 countries sometimes or rarely use this option. Thirteen countries are allowed to obtain non-publicly available information from other enforcers (tax and market oversight); however, this option is rarely used. Fifteen countries are allowed to obtain non-publicly available information from the issuers' auditor. One country indicates that they always do this, while the remaining 14 countries rarely use this option. The number of annual reviews (scaled by listed issuers under enforcement) varies widely (B3). One country reviews 100% of issuers, while another only reviews 13% of issuers. The remaining countries review on average 24% of the issuers under enforcement, which means they are reviewed approximately every 4th year.

In Table 3, panel C, we report statistics on the 'Enforcement approach'. Twelve countries have prepared internal guidelines to assist them in the enforcement activity (C1) and nine of these have added supplementary checklists to the internal guidelines. Thus, five countries do not have guidelines for their enforcement activities. Fifteen countries have identified focus areas for review, while two countries have not identified such areas (C2).

The scores of 'Actions and sanctions' are reported in Table 3, panel D. The first row shows the actions available to enforcement bodies in Europe and the degree to which they are used (D1). One enforcer has only one action available (0.14) (public corrective note). Other enforcers typically have six to seven different actions available, but the extent to which they apply the actions varies. The most frequently applied actions are correction in the next year's financial statement (12 countries), a public corrective note

(11 countries), issuing of new financial statements (eight countries) and warnings (five countries). The least commonly applied actions are fines (three countries) as well as the more severe delisting (one country) and suspension from trading (two countries). Two countries have not used any of their available actions, while three countries have only used one. The remaining 12 countries have used two to four of their available actions, thus supporting the finding by Jackson (2006) that the number of sanctions used is limited, relative to those available. All countries are able to sanction issuers if they do not respond to action imposed by the enforcement bodies but only 9 of the 17 countries have used these sanctions (D3). In five countries, there is limited issuer acceptance and response to decisions and actions, according to the enforcement bodies (D2). In this regard, it is worth noting that sanctions have been imposed for not responding to action in all five countries. Regulatory specialists believe that the acceptance among European issuers is even lower, however, as specialists indicate that issuers from as many as 15 countries do not always respond to the decisions and actions of enforcers (D4). This result indicates there is a discrepancy between the enforcers and the issuers in regard to the understanding of when a suitable response to an action or sanction has been provided. This discrepancy may jeopardize the credibility of the enforcers in the long term.

Table 3, panel E reports statistics on 'Transparency'. Enforcement bodies in 13 out of 17 countries have not prepared publicly available guidelines for enforcement activities (E1). This is not entirely in line with the fact that a majority of the regulatory specialists find that guidance from the enforcers contains information that is useful for financial reporting quality (E7). Four countries do not communicate identified focus areas for review to issuers, according to the enforcement bodies (E2). In comparison, regulatory specialists find that issuers in seven countries are not aware of focus areas of the enforcement, suggesting that the enforcement bodies in a few countries could improve communication (E6). Fifteen countries communicate a draft decision by letter to the issuer before the final decision is made, while two countries never communicate draft decisions (E4). Twelve countries communicate identified omission or misstatements to

the issuer even if they are immaterial (E5). Furthermore, enforcement bodies are generally reluctant to publish their decisions in full (E3). Only four countries publish all decisions. Most countries only publish *some* decisions and some of these decisions are only published in a *condensed* version. Two countries only publish their decisions to the issuers. In comparison, nine regulatory specialists agree or strongly agree that decisions are helpful for interpretation and used by most issuers in the preparation of financial statements (E8).

The scores of 'interaction with stakeholders' are reported in Table 3, Panel F. We observed above that eight enforcement bodies are empowered to give pre-clearance. Here, we see that all eight enforcement bodies make use of this opportunity (F1). In two of the eight countries where pre-clearance is possible, the regulatory specialists do not believe that the opportunities for pre-clearance available from the enforcers are sufficient (F3). Interaction between issuer and enforcer is possible in all countries; however, the level of interaction varies across countries (F2). According to both the enforcement bodies and issuers, eight countries have active interaction. The remaining countries only have a few interactions.

Table 4 provides a summary of the scaled score¹¹ and the ranking score for each of the six constructs as well as for the total enforcement index. The mean ranking score of the total enforcement index is 59.88 and the mean scaled score is 3.91 (panel A). The standard deviations of the ranking score (15.90) and the scaled score (0.60) suggest considerable differences in the enforcement approaches used in the 17 countries. For example, two countries (10 and 14) have ranking scores of 35 and 24, respectively, indicating that enforcement is less strict in these countries. One country (3) has a ranking score as high as 89 and two countries (2 and 7) have ranking scores above 70, indicating that enforcement in these countries is stricter than other countries included in the sample.

¹¹ A scaled score is defined as the sum of the score divided by the number of questions in a construct.

[Insert Table 4 about here]

If we compare how each country scores across the six constructs, we find that some countries appear to have different priorities as to which aspects of enforcement they consider important. For example, countries 4 and 16 have identical total ranking scores of 68; however, they obtain different scores across the constructs. Country 4 receives a ranking score of 17 for Independence and a ranking score of 8 for Transparency. Country 16, on the other hand, receives a ranking score of 7 for Independence and a ranking score of 17 for Transparency. This demonstrates that countries have different institutional settings, which may cause differences in enforcement strategies and priorities.

Table 4, panel B reports the 'deterrence' and 'persuasion' indices for the 17 countries. The table shows that countries that obtain a high score on deterrence tend to also obtain a high score on persuasion and vice versa. For example, country 16 is ranked 17 on the 'deterrence' index and 16 on the 'persuasion' index. Country 14 is ranked 1 on both indices. This is also supported by statistics from Table 5, which show a positive and significant correlation between the two indices at the 10% level. There are also, however, some differences in the adopted enforcement strategy in certain countries. For example, country 4 is ranked 13 on the 'deterrence' index and only 5 on the 'persuasion' index, while country 12 is ranked 14 on the 'persuasion' index and only 6 on the 'deterrence' index.

To sum up, the empirical results suggest that not only does the level of enforcement vary across countries, but the enforcement bodies also seem to emphasize different aspects of enforcement. Further, different enforcement strategies are adopted across countries. These findings support Leuz (2010), who argues that despite a common set of rules (directive 2004/109), differences in enforcement continue to persist.

Comparing enforcement indices

In this section, we correlate our enforcement indices with existing enforcement indices used in the accounting literature. The correlations, which are reported in Table 5, show that our total enforcement index is only correlated with Jackson and Roe's (2009) staff index; however, the correlation coefficient is negative. In this context, it is important to remember that Jackson and Roe's staff and budget indices cover other aspects than just the financial reporting enforcement.

Correlations involving the two sub-indices, 'deterrence' and 'persuasion', are largely similar. There are no significant correlations with other indices except for the significant and negative correlation between the 'persuasion' index and the Jackson and Roe (2009) indices.¹²

[Insert table 5 about here]

The results reported in Table 5 suggest that none of the existing enforcement indices capture the strictness of how enforcement is actually carried out. We are especially puzzled by the fact that we do not observe any correlation between our enforcement indices and the Brown et al. (2014) enforcement index. As discussed above, the Brown et al. (2014) enforcement index was developed with the purpose of measuring enforcement of financial reporting.

One potential explanation is that the Brown et al. (2014) index contains three constructs that are excluded from our enforcement index. We therefore re-measure the Brown et al. (2014) index excluding the three constructs that are not included in our index. This index is labelled the modified Brown et al. (2014) enforcement index. The modifications are explained in appendix B.

¹² As a sensitivity analysis, we also calculate the 'deterrence' and 'persuasion' indices by only including unique questions (i.e., excluding questions that cover both the 'deterrence' and the 'persuasion' strategy). The results appear robust to this adjustment of the data as we find correlations similar to the ones reported.

The modified Brown et al. (2014) enforcement index is therefore calculated from the remaining three constructs: Item #3 (Reviews financial statements), Item #4 (Reports surveillance programmes) and Item #5 (Taken enforcement actions) and is based on values from the original Brown et al. (2014) index.

Table 6 reports the correlations between the modified Brown et al. (2014) enforcement index and our enforcement indices and shows no significant correlations with Brown et al. (2014).

[Insert Table 6 around here]

Another potential explanation for the lack of correlation between the Brown et al. (2014) index and our enforcement index is that our index is based on constructs that extend the constructs included in Brown et al. (2014). We address this issue by adjusting our enforcement index so that it a) consists of the three constructs in the modified Brown et al. (2014) that are similar to the ones in our enforcement index; and b) only includes questions from our survey that are relevant in describing each of the three constructs. This index is labelled the adjusted enforcement index. The adjusted enforcement index is explained in more detail in appendix C.

Table 6 reports the correlations for the adjusted enforcement index. As expected, our adjusted enforcement index is positively correlated the enforcement index at the 1% level. This finding may not come as a surprise as we correlate six items from our adjusted enforcement index against our total enforcement index consisting of 23 items. This result does, however, provide indications that the adjusted enforcement index captures the breadth and depth of the actual enforcement. More interestingly, neither the Brown et al. (2014) index nor the modified Brown et al. (2014) index is correlated with the adjusted enforcement index. Thus, even when we apply the same constructs as in Brown et al. (2014) and use

questions that we believe describe the actual enforcement more accurately, we cannot find any correlation with Brown et al. (2014).

Conclusions

In this paper, we investigate how the strictness of financial reporting enforcement varies across 17 European countries, and we perform a critical review of enforcement indices used in prior accounting studies. In an attempt to understand the degree to which previous enforcement indices capture the actual enforcement performed, we conduct a survey of the enforcement activities in European countries. Our respondents are enforcers and regulatory specialists from a Big Four accounting firm. Our survey shows that there are variations in the strictness of enforcement of financial reporting in Europe. Enforcement bodies seem to emphasize different aspects of enforcement, which is expected considering differences in their institutional settings; however, some countries consistently exhibit a stricter enforcement.

Furthermore, it appears that European enforcement bodies choose different enforcement strategies.

Our enforcement indices do not generally correlate with existing enforcement indices. The general lack of correlation may not be a surprise as many of the existing enforcement indices were created to measure other things than financial reporting enforcement; however, we are puzzled by the fact that there is no correlation between our enforcement index and the enforcement index developed by Brown et al. (2014). A closer look at the enforcement index developed by Brown et al. (2014) suggests that the main reason is that the items used by Brown et al. (2014) captures the breadth and depth of how the actual enforcement is carried out to a limited extent at best.

This paper contributes to previous knowledge by providing insights into how financial reporting enforcement is actually carried out in Europe. This may be of interest to academia as it questions the relevance of enforcement indices used in prior studies. In fact, enforcement indices used in prior studies

seem to be at best only vague proxies for how financial reporting enforcement is actually carried out.

Future research should therefore carefully consider which enforcement index is used and what that index actually measures. The results should also be of interest to regulators such as ESMA and other enforcement bodies. The variations in the strictness of financial reporting enforcement in Europe are not aligned with ESMA's ambition of a homogenous enforcement in Europe and the findings may be used to identify areas where variations exist. The way in which financial information is enforced also has an impact on issuers and auditors. They must address variations in the strictness of financial reporting enforcement. As enforcement has an impact on the interpretation of laws and standards, such variation may add a layer of national divergence to financial reporting regulation on top of international standards (IFRS). Issuers listed in more than one country may incur additional burdens as they must address more than one enforcer and possibly also increased levels of disclosure due to differences in guidance.

A major challenge in this study has been that respondents participated on the condition of anonymity. This made the comparison of enforcement in Europe more complicated and limited the possibilities of debating the relationships between results and institutional contexts. It has also restricted our ability to elaborate on the results, and we have not been able to make the enforcement indices available for use in other studies. We therefore hope that future studies will be more successful in gaining access to enforcement data without such restrictions. This obviously requires that regulators support research on enforcement.

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Table 1 – Overview of enforcement indices

Proxy	Source	Examples of accounting studies using enforcement proxy
Legal oriented indices		
Investor protection (shareholder rights, creditors rights) Legal enforcement	La Porta et al. (1998)	Hope (2003); Leuz et al. (2003); Hopp and Dreher (2013); Brown et al. (2014); Preiato et al. (2015)
Legal enforcement	Kaufmann et al. ¹³	Daske et al. (2008); Florou and Pope (2012); Houqe et al. (2012) Brown et al. (2014) Beuselinck et al. (2016) Christensen et al. (2016)
Investor protection Public and private enforcement	La Porta et al., 2006	Leuz (2010); Barth et al. (2012) Christensen et al. (2016)
Public and private enforcement Resources (budget and staff)	Jackson and Roe (2009)	
Investor protection (protection of minority shareholders) Private enforcement	Djankov et al. (2008)	Armour et al. (2009); Spamann (2010); Klerman et al. (2011); Xu (2014)

¹³ The index is updated yearly, which is why an individual year has not been assigned. The year of the index also varies from study to study, which is why no year has been assigned to the index. We use the index from 2014.

Legal, auditing and accounting oriented indices		
Audit spending/auditor type/ stock exchange listing Legal enforcement Investor protection	Hope (2003)	Hope (2003) Preiato et al. (2015)
Legal enforcement Investor protection Auditing and accounting enforcement	World Economic Forum (2008)	Houqe et al (2012) Preiato et al. (2015)
Accounting oriented index		
Auditing and accounting enforcement	Brown et al. (2014)	Tsalavoutas et al. (2014) Preiato et al. (2015) André et al. (2015) Bischof et al. (2015) Beeks et al. (2016) Florou et al. (2017)

Table 2 – Comparison of enforcement proxies and key enforcement characteristics

Key characteristics of enforcement

Enforcement index	Index measurement	Index for the enforcement of financial reporting	Independence	Scope of enforcement	Enforcement approach	Actions and sanctions	Transparency and public availability to guidance and decisions	Interaction with stakeholders
La Porta et al., 1997	Share holders rights and creditor rights, Legal enforcement	No	No	No#	No	Yes*	No	Yes
La Porta et al., 1998	Investor protection, Legal enforcement	No	No	No	No	No	No	Yes
Hope, 2003	Audit spending/auditor type/stock exchange listing, Legal enforcement, Investor protection	Yes	No	No	No	Yes&	No	Yes
Kaufmann et al	Legal enforcement	No	No	No	No	Yes	No	Yes
World Economic Forum	Legal enforcement; Investor protection; Auditing and accounting enforcement	No	Yes	No	No	No	No	Yes
La Porta et al., 2006	Investor protection; Public and private enforcement	No	No	No%	Yes§	Yes	No	Yes
Jackson and Roe, 2009	Public and private enforcement	No	Yes	No	Yes§	Yes	No	Yes
Djankov et al., 2008	Investor protection and private enforcement	No	No	No	No	Yes	No	Yes
Brown et al., 2014	Auditing and accounting enforcement	Yes	Yes	Yes	Yes§	Yes	No#	Yes

The scope of enforcement is restricted to shareholders rights and creditors rights is fulfilled in this regard but not in regard to enforcement

* This characteristic is considered to be fulfilled through the measures the a creditor may take against a borrower.

& This characteristic is considered to be fulfilled through the measurement of shareholder protection and does not directly relate to the

% The scope of enforcement is restricted to supervision of securities market and is in this regard fulfilled but not in regard to the enforcement

§ The scope of the three studies does not include a measurement of the enforcers ability to select subjects for enforcement (risk-based approach)

nor do the include a measure of the enforcement bodies ability to cooperate with other enforcement bodies across borders.

π The Brown et al enforcement proxy does include an item that measures if the enforcement body provide a report about its review of financial

statements but this is considered to be very different from actually publishing guidance and the decisions the body has reached during its

review.

Table 4 – Overview of enforcement by country

Panel A - Total Enforcement Index																				
Countries	Independence			Scope of enforcement			Enforcement approach			Actions and sanctions			Transparency			Interaction with stakeholders			Total	
	Scaled (0 to 1)	Ranking (1 to 17)	Ranking (1 to 17)	Scaled (0 to 1)	Ranking (1 to 17)	Ranking (1 to 17)	Scaled (0 to 1)	Ranking (1 to 17)	Ranking (1 to 17)	Scaled (0 to 1)	Ranking (1 to 17)	Ranking (1 to 17)	Scaled (0 to 1)	Ranking (1 to 17)	Ranking (1 to 17)	Scaled (0 to 1)	Ranking (1 to 17)	Scaled (0 to 1)	Ranking (1 to 17)	Scaled (0 to 1)
1	0.67	11.00	7.00	1.00	17.00	0.82	14.00	0.63	10.00	0.50	9.00	0.50	9.00	0.50	9.00	4.11	68.00			
2	0.75	13.00	0.56	14.00	0.50	7.00	0.89	17.00	0.58	9.00	0.88	15.00	0.58	9.00	0.88	15.00	4.15	75.00		
3	0.88	16.00	0.54	9.00	1.00	17.00	0.85	15.00	0.88	15.00	1.00	17.00	0.88	15.00	1.00	17.00	5.14	89.00		
4	0.96	17.00	0.49	7.00	1.00	17.00	0.77	12.00	0.55	8.00	0.44	7.00	0.55	8.00	0.44	7.00	4.21	68.00		
5	0.67	11.00	0.66	16.00	0.50	7.00	0.75	11.00	0.52	7.00	0.81	14.00	0.52	7.00	0.81	14.00	3.91	66.00		
6	0.75	13.00	0.56	14.00	0.50	7.00	0.67	6.00	0.67	13.00	0.81	14.00	0.67	13.00	0.81	14.00	3.97	67.00		
7	0.63	7.00	0.55	11.00	1.00	17.00	0.80	13.00	0.67	13.00	0.56	10.00	0.67	13.00	0.56	10.00	4.20	71.00		
8	0.58	3.00	0.39	1.00	1.00	17.00	0.74	10.00	0.74	14.00	0.38	5.00	0.74	14.00	0.38	5.00	3.83	50.00		
9	0.54	1.00	0.55	11.00	1.00	17.00	0.65	4.00	0.50	6.00	0.50	9.00	0.50	6.00	0.50	9.00	3.74	48.00		
10	0.67	11.00	0.40	2.00	0.50	7.00	0.65	4.00	0.45	4.00	0.44	7.00	0.45	4.00	0.44	7.00	3.10	35.00		
11	0.63	7.00	0.41	3.00	1.00	17.00	0.68	7.00	0.42	3.00	0.38	5.00	0.42	3.00	0.38	5.00	3.51	42.00		
12	0.88	16.00	0.45	4.00	0.50	7.00	0.71	9.00	0.94	17.00	0.63	11.00	0.94	17.00	0.63	11.00	4.09	64.00		
13	0.67	11.00	0.56	14.00	0.50	7.00	0.67	6.00	0.50	6.00	1.00	17.00	0.50	6.00	1.00	17.00	3.90	61.00		
14	0.58	3.00	0.68	17.00	0.00	1.00	0.57	1.00	0.25	1.00	0.25	1.00	0.25	1.00	0.13	1.00	2.21	24.00		
15	0.88	16.00	0.59	15.00	1.00	17.00	0.65	4.00	0.94	17.00	0.75	12.00	0.94	17.00	0.75	12.00	4.29	67.00		
16	0.63	7.00	0.51	8.00	1.00	17.00	0.89	17.00	0.94	17.00	0.25	2.00	0.94	17.00	0.25	2.00	4.21	68.00		
17	0.63	7.00	0.48	5.00	1.00	17.00	0.70	8.00	0.67	13.00	0.38	5.00	0.67	13.00	0.38	5.00	3.84	55.00		
Mean	0.70	10.00	0.52	9.29	0.76	12.53	0.73	9.29	0.61	9.35	0.58	9.41	0.61	9.35	0.58	9.41	3.91	59.88		
Median	0.67	11.00	0.54	9.00	1.00	17.00	0.71	9.00	0.58	9.00	0.50	9.00	0.58	9.00	0.50	9.00	3.97	66.00		
Minimum	0.54	1.00	0.39	1.00	0.00	1.00	0.57	1.00	0.25	1.00	0.13	1.00	0.25	1.00	0.13	1.00	2.21	24.00		
Maximum	0.96	17.00	0.68	17.00	1.00	17.00	0.89	17.00	0.94	17.00	1.00	17.00	0.94	17.00	1.00	17.00	5.14	89.00		
Std.dev.	0.12	4.96	0.08	5.18	0.31	5.68	0.09	4.87	0.19	5.12	0.26	4.96	0.19	5.12	0.26	4.96	0.60	15.90		

Panel B - Deterrence and Persuasion enforcement indices

Countries	Deterrence enforcement strategy		Persuasion enforcement strategy		Total enforcement	
	Scaled (0 to 1)	Ranking (1 to 17)	Scaled (0 to 1)	Ranking (1 to 17)	Scaled (0 to 6)	Ranking (6 to 102)
1	0.80	16,00	0.70	8,00	4,11	68,00
2	0.69	10,00	0.73	11,00	4,15	75,00
3	0.76	14,00	0.93	17,00	5,14	89,00
4	0.73	13,00	0.70	5,00	4,21	68,00
5	0.63	4,00	0.69	7,00	3,91	66,00
6	0.68	8,00	0.76	15,00	3,97	67,00
7	0.78	15,00	0.75	14,00	4,20	71,00
8	0.65	5,00	0.74	12,00	3,83	50,00
9	0.69	10,00	0.66	5,00	3,74	48,00
10	0.56	2,00	0.56	2,00	3,10	35,00
11	0.71	11,00	0.60	3,00	3,51	42,00
12	0.66	6,00	0.80	14,00	4,09	64,00
13	0.61	3,00	0.69	7,00	3,90	61,00
14	0.50	1,00	0.35	1,00	2,21	24,00
15	0.72	12,00	0.71	9,00	4,29	67,00
16	0.81	17,00	0.82	16,00	4,21	68,00
17	0.68	8,00	0.73	11,00	3,84	55,00
Mean	0.69	9,12	0.70	9,24	3,91	59,88
Median	0.69	10,00	0.71	9,00	3,97	66,00
Minimum	0.50	1,00	0.35	1,00	2,21	24,00
Maximum	0.81	17,00	0.93	17,00	5,14	89,00
Std.dev.	0.08	5,04	0.12	5,03	0.60	15,90

Table 5 – Correlation of the enforcement index with other enforcement indices

Spearman correlation	Total Enforcement index	Deterrence index	Persuasion index	Brown et al. (2014) - Enforcement	Hope (2003)	Rule of Law (Kaufman et al.) (2014)	Djankov et al. (2008)
Enforcement index	1.0000						
Deterrence index	0.7182 ***	1.0000					
Persuasion index	0.6704 ***	0.4631 *	1.0000				
Brown et al. (2014) - Enforcement	-0.0218	0.2134	0.0105	1.0000			
Hope (2003)	-0.2540	0.1296	-0.1086	0.2012	1.0000		
Rule of Law (Kaufman et al.) (2014)	0.0117	0.2009	0.0344	0.4525 *	0.8091 ***	1.0000	
Djankov et al. (2008)	0.1275	0.0731	0.2169	-0.2158	-0.3777	-0.1368	1.0000
WEC (World Economic Forum) (2013)	-0.1242	0.1767	-0.0418	0.4488 *	0.7972 ***	0.9092 ***	-0.2480
Jackson and Roe, Staff\$ (2009)	-0.6879 **	-0.4601	-0.5904 *	0.2258	0.6191	0.7215 **	-0.4119
Jackson and Roe, Budget\$ (2009)	-0.2744	-0.3664	-0.4405 *	-0.0200	0.0839	-0.1789	-0.6864 **
La Porta et al. (2006)	-0.2893	-0.4518	-0.2012	-0.2012	0.7727	-0.1296	-0.2888
La Porta et al. (1998)	0.0106	0.3404	-0.1825	0.3652	0.7461 ***	0.8386 ***	-0.1113
La Porta et al. (1997)	0.1829	0.4104	-0.1162	0.2384	0.7324 ***	0.8608 ***	-0.1843

(The table is continued below)

Table 5 (continued)

	WEC (World Economic Forum) (2013)	Jackson and Roe, Staff\$ (2009)	Jackson and Roe, Budget\$ (2009)	La Porta et al. (2006)	La Porta et al. (1998)	La Porta et al. (1997)
WEC (World Economic Forum) (2013)	1.0000					
Jackson and Roe, Staff\$ (2009)	0.5727 *	1.0000				
Jackson and Roe, Budget\$ (2009)	-0.0964	0.5818 *	1.0000			
La Porta et al. (2006)	-0.1399	0.3810	0.5874 *	1.0000		
La Porta et al. (1998)	0.7356 ***	0.2619	-0.2592	-0.1716	1.0000	
La Porta et al. (1997)	0.7904 *	0.3095	-0.2393	-0.1378	0.9588 ***	1.0000

*, **, *** indicate significance at a 10%, 5% and 1% level, respectively. \$The proxies used are for both proxies the extrapolated version of the as this increases the underlying number of countries used in the calculation of the correlation.

Table 6 – Correlations between modified enforcement indices

Spearman correlation	Enforcement index	Deterrence index	Persuasion index	Brown et al. (2014) - Enforcement	Brown et al. (2014) - 3 item enforcement	Modified Brown et al. (2014) - enforcement
	Enforcement index					
	Deterrence index	1,0000				
	Persuasion index	0,7182 ***	1,0000			
	Brown et al. (2014) - Enforcement	0,6704 ***	0,4631 *	1,0000		
	Modified Brown et al. (2014) - enforcement	-0,0218	0,2134	0,0105	1,0000	
	Brown et al. (2014) 3 item enforcement index	0,1021	0,1654	0,0782	0,8874 ***	1,0000
	Modified Brown et al. (2014) - enforcement	0,6749 ***	0,7337 ***	0,5295 **	-0,2169	-0,2510
						1,0000

***, ***, ** indicate significance at a 10%, 5% and 1% level, respectively.

Appendix A. Overview of questions included in the enforcement proxy and link to key characteristics of enforcement

A. Independence			
<i>Question*</i>	<i>Rationale</i>	Enforcement strategy	Basis for scoring
A1. Please indicate whether the [body] is independent.	An independent body is supposed to strengthen enforcement by supplying a higher level of authority and respect. This is needed for all enforcement strategies but is especially important for the persuasion strategy as it offers the enforcer a stronger base when it must convince the enforced entity about the qualities of the regulation and rules. (FEE 2002, Cihak and Podpiera 2006, La Porta et al. 2006, Basel 2012, IOSCO 2013, OECD 2014a, 2014b, Barth et al. 2013b).	Deterrence and Persuasion	= 1 if independent body is indicated, 0 otherwise.
A2. Does the enforcement organization include participants from the following representatives and what is the estimated number of representatives from each group?	Broad representation strengthens the independence of the enforcement body from the influence of a single group of stakeholders. Further, it provides an increased level of legitimacy, which makes it easier to persuade the enforced entity to comply with regulation (OECD 2014a, 2014b, EC 2017).	Persuasion	The options provided in the questionnaire are Representatives from Auditors, Issuers, Investors, Accounting experience, Legal background, Academic background, Government officials, Other. The score is the number of groups divided by 8.

Question*	Rationale	Enforcement strategy	Basis for scoring
<p>A3. (S) To what extent do you agree with the following statement: ‘Those who review financial statements, generally have an appropriate competence level’.</p>	<p>Higher competence levels improve independent thinking, resulting in financial reporting enforcement of a higher quality under both a deterrence and persuasion strategy (Baldwin 2010, Ernstberger et al. 2012, Barth et al. 2013b, ESMA 2014).</p>	<p>Deterrence and Persuasion</p>	<p>The scoring is based on a 5-point response scale, ranging from strongly disagree (0) to strongly agree (4), and divided by 4.</p>

B. Scope of Enforcement			
Question*	Rationale	Enforcement strategy	Basis for scoring
B1. Please state the areas of responsibility within financial reporting.	Enforcement becomes stricter as the range of enforcement areas increase; however, the different responsibilities are utilized to a varying degree by the different enforcement strategies as the deterrence strategy primarily will use review, decision and actions, while the persuasion strategy will primarily use the pre-clearance, informal guidance and review (Ayres and Braithwaite 1992, Baldwin 2010, Baldwin et al. 2010, 2012).	Deterrence and Persuasion	The options provided in the questionnaire are: review, decision, action, pre-clearance and informal guidance. The score is the number of activities divided by 5.
B2. Please tick off the materials that can be used by reviewers in reviewing financial statements from a particular issuer.	The availability of entity-specific information beyond the financial statements strengthens the basis on which enforcement is conducted. This access to materials appears to be essential for both enforcement strategies (FEE 2002, Cihak and Podpiera 2006, Basel 2012, IOSCO 2013, OECD 2014a, 2014b, ESMA 2014, SEC 2016a).	Deterrence and Persuasion	The types of materials listed are: Published information beyond the financial report, Non-publicly available documentation from issuers as received directly by reviewers/enforcers; Non-publicly available information received from other enforcers, such as tax authorities or those involved in market oversight, Non-publicly available information requested from auditors, Information received from other enforcers, Other materials. The 4-point response scale is not possible (0), possible but rarely used (1), common (2), always included in review (3). The score is calculated by adding the response for each type of material and dividing this by 18.

Question*	Rationale	Enforcement strategy	Basis for scoring
B3. Ratio of listed companies under enforcement who have been reviewed during the year.	This is a measurement of the actual performed enforcement activities and is especially important for the deterrence strategy as it must show a reasonable number of entity reviews each year before the 'deterrence effect' is perceived to be real (Berger 2010, ESMA 2014, 2017).	Deterrence	This ratio is based on two questions: 'Please estimate the number of issuers per year selected for reviews in the past 3 years', and 'Please estimate the total issuers under enforcement as an average of the past 3 years'. The ratio is calculated as the number of issuers selected for review divided by the number of total issuers under enforcement.

C. Enforcement approach			
Question*	Rationale	Enforcement strategy	Basis for scoring
C1. Has the enforcer in your country guidelines for its enforcement activities?	Both enforcement strategies must have guidelines for the enforcement activities as they ensure consistent enforcement, although it may be argued that guidelines appear to be more important for the persuasion strategy as it builds on consensus. This requires that all issuers are treated equally and that similar infringements are subject to similar decisions and sanctions (Cihak and Popiera 2006, Baldwin 2010, OECD 2014b).	Deterrence and Persuasion	= 1 if the enforcer has internal guidelines for its enforcement activities, 0 otherwise.
C2. Does the enforcer identify specific focus areas for review - either permanently established focus area or areas that may change from year to year?	The identification of specific focus areas in addition to the routine areas indicates that the enforcer systematically addresses the areas in which shortcomings are expected in the current environment. From a persuasion perspective, the identification of focus areas will serve as service information to issuers that this is an area of particular interest while it from a deterrence perspective may be seen as a warning of which areas the enforcers will review. Issuers will therefore undertake additional efforts to ensure compliance in these areas (Ernstberger et al. 2012, ESMA 2014, SEC 2016a).	Deterrence and Persuasion	= 1 if focus areas are identified by the enforcer, 0 otherwise.

D. Actions and sanctions			
Question*	Rationale	Enforcement strategy	Basis for scoring
D1. Please distribute 100 points to the actions available in your country based on your estimation of the frequency of the frequency of action for the past 3 years. The most common should be assigned with the highest number of points.	The range of actions available and the frequency to which they are used indicate the powers of an enforcer. The deterrence strategy makes heavy use of sanctions as it relies on deterring the issuers into compliance by establishing a 'Deterrence effect' (La Porta et al. 2006, Coffee 2007, Jackson and Roe 2009, Ernstberger et al. 2012).	Deterrence	The options provided in the questionnaire are: Warning, Correction in the next financial statement, Public corrective note, Issuance of new financial statements, Fine, Suspension from trading, Delisting. The score has two parts that are added together and divided by 14: (1) the enforcer must indicate if an action is possible (1 is added for each possible action) and (2) the enforcer is asked to indicate the extent to which it has been used for the past 3 years (1 is added for all values above 0 points).
D2. To what extent do you believe that issuers generally accept and respond to decisions and actions?	A lack of acceptance and response to enforcement decisions and actions will undermine both the deterrence and the persuasion strategy. The deterrence strategy requires acceptance and response to maintain the 'deterrence effect' (Baldwin et al. 2010, 2012, Ernstberger et al. 2012, Barth et al. 2013b, Choi et al. 2016). The persuasion strategy requires it to ensure buy-in from the issuers as this ensures compliance with the decisions and actions (Ernstberger et al. 2012, Barth et al. 2013b).	Deterrence and Persuasion	The scoring is based on a five-point response scale ranging from 'Issuers never accept and respond to decisions and actions' (0) to 'Issuers always accept and respond to decisions and actions' (4), and divided by 4. This is considered to be a combined-question, as the score for this question is added to the score for question D4. The sum of the two scores is divided by two in the indices.

Question*	Rationale	Enforcement strategy	Basis for scoring
<p>D3. What happens if issuers do not respond to actions from the enforcement body? Please assign 100 points according to the frequency of sanctions when issuers do not respond to an action.</p>	<p>Whether the enforcer can sanction non-responses indicates the power of the enforcer and is a critical ability for enforcers following the deterrence strategy. Therefore, it is imperative that enforcers following this strategy are able to force their will onto the issuers (Baldwin 2010, Basel 2012, Ernstberger et al. 2012, Barth et al. 2013a, 2013b, SEC 2016a).</p>	<p>Deterrence</p>	<p>The score has two elements: whether sanctions are available (1 if they are, 0 otherwise) and whether sanctions are used (1 if they are, 0 otherwise), and the sum of the two elements is divided by 2.</p>
<p>D4. (S) To what extent do you agree with the following statements related to decisions: 'Issuers always accept and respond to decisions and sanctions'.</p>	<p>See rationale under D2.</p>	<p>Deterrence and Persuasion</p>	<p>The score for this question is calculated as $x/4$, as there are 5 possible answers (as the minimum score is 0 the score is divided by 4). An answer of 'Strongly agree' is given a score of 4 and an answer of 'Strongly disagree' is given a score of 0. This is considered to be a combined-question, as the score for this question is added to the score of question D2. The sum of the two scores is divided by two in the indices.</p>

E. Transparency			
Question*	Rationale	Enforcement strategy	Basis for scoring
E1. Have the enforcers in your country prepared <i>publicly</i> available guidelines for enforcement activities?	This indicates whether enforcement activities are transparent. The persuasion strategy requires that enforcers publish guidelines to increase the transparency and understanding of the performed enforcement (FEE 2002, Armour et al. 2009, Baldwin 2010, OECD 2014a, 2014b, SEC 2016b)	Persuasion	= 1 if guidelines for enforcement activities are publicly available, 0 otherwise. This is considered to be a combined-question, as the score of this question is added to the score of question E7. The sum of the two scores is divided by two in the indices.
E2. Are focus areas communicated to issuers (e.g., in alerts or in an annual letter)?	Transparency is important for the persuasion strategy. Communicating focus areas to the public increases the transparency of the enforcement as well as the consistency of areas being enforced (Ayres and Braithwaite 1992, FEE 2002, Armour et al. 2009, Baldwin et al. 2010, 2012, OECD 2014b).	Persuasion	= 1 if focus areas of enforcers are known to issuers, 0 otherwise. This is considered to be a combined-question, as the score of this question is added to the score of question E6. The sum of the two scores is divided by two in the indices.

Question*	Rationale	Enforcement strategy	Basis for scoring
E3. Please identify which of the following statements are correct in describing the communication of decisions.	The publication of enforcement decisions increases the transparency and the impact of enforcement. This benefits the persuasion strategy by making the enforcement transparent and the deterrence strategy by creating and maintaining the 'Deterrence effect' (Baldwin 2010, Baldwin et al. 2010, 2012, Ernstberger et al. 2012, Barth et al. 2013b, OECD 2014b, SEC 2016a).	Deterrence and Persuasion	The following options are provided: decisions are not publicly available (0), some enforcement decisions are made public but in a condensed version (1), some enforcement decisions are made public as a full version (2), all enforcement decisions are made public but in a condensed version (3), all enforcement decisions are made public as a full version (4). The value for the indicated option is divided by 4.
E4. How are draft decisions communicated to the issuers?	If enforcers interact with issuers on the basis of draft decisions, it strengthens the basis on which enforcement is carried out, which is at the core of the persuasion strategy (Armour et al. 2009, Baldwin 2010, and OECD 2014b).	Persuasion	= 1 if draft decisions are communicated to issuers, 0 otherwise.
E5. Are omissions or misstatements communicated to issuers if they are not considered material?	If issuers receive information about immaterial omissions or misstatements, it may impact their behaviour going forward, which is the objective of the persuasion strategy (OECD 2014b).	Persuasion	= 1 if issuers receive notification about immaterial omissions and misstatements, 0 otherwise.

Question*	Rationale	Enforcement strategy	Basis for scoring
E6. (S) Are you aware of focus areas specified and communicated by enforcement bodies (e.g., in an alert, an annual letter or on the website of the enforcer)?	If the priorities of enforcers are better known by issuers, it means that efforts to be transparent have been more effective and thus measures the impact of the persuasion strategy Armour et al. 2009, Baldwin et al. 2010, 2012, OECD 2014b).	Persuasion	= 1 if regulatory specialists are aware of focus areas, 0 otherwise. This is considered to be a combined-question, as the score of this question is added to the score of question E2. The sum of the two scores is divided by two in the indices.
E7. (S) To what extent do you consider the guidelines to be useful for the following parties?	The objective of the persuasion strategy is to nudge and guide the enforced into compliance with the regulation. The publication of guidelines may increase the transparency and understanding of the enforcement. (FEE 2002, Armour et al. 2009, Baldwin 2010, OECD 2014a, 2014b, SEC 2016b).	Persuasion	Regulatory specialists are asked to rate the perceived usefulness for issuers and auditors respectively. The response scale is from not useful (0) to very useful (4) or it may be indicated that guidelines are not used (0). The responses are added and divided by 8. This is considered to be a combined-question, as the score of this question is added to the score of question E1. The sum of the two scores is divided by two in the indices.

Question*	Rationale	Enforcement strategy	Basis for scoring
<p>E8. (S) To what extent do you agree with the following statement related to decisions: 'Decisions are helpful for interpretation and used by most issuers in the preparation of financial statements'.</p>	<p>Decisions should contain some discussion about what was wrong and thus increase the transparency and provide guidance for other similar areas, which is in-line with the principles of the persuasion strategy (Aryes and Braithwaite 1992, Baldwin et al. 2010, 2012, OECD 2014a, 2014b).</p>	<p>Persuasion</p>	<p>The scoring is based on a five-point response scale, ranging from strongly disagree (0) to strongly agree (4), and divided by 4.</p>

F. Interaction with stakeholders			
Question*	Rationale	Enforcement strategy	Basis for scoring
F1. Is it possible to get a pre-clearance in your country?	The use of pre-clearance is an important aspect of the persuasion strategy as it enables enforcers to have a flexible enforcement based on an open dialogue with the enforced entity (Aryes and Braithwaite 1992, Djankov et al. 2003, Shleifer 2005, Jackson 2006, 2007, Coffee 2007, Baldwin et al. 2010, 2012, ESMA 2014, Choi et al. 2016).	Persuasion	= 1 if pre-clearance is possible, 0 otherwise. This is considered to be a combined-question, as the scoring of this question is added with the scoring of question F3. The sum of the two scores is divided by two in the indices
F2. (S) To what extent do you agree with the following statements: ‘The opportunities for interaction with the enforcer of financial statements are sufficient’.	The opportunities for interaction with the enforcer are an important aspect of the persuasion strategy. This question relays whether the issuers are satisfied with the opportunities for interaction with the enforcers and thus if the enforcers are able to establish an interaction with the issuers (Aryes and Braithwaite 1992, Shleifer 2005, Baldwin 2010, Baldwin et al. 2010, 2012, OECD 2014a, 2014b).	Persuasion	The scoring is based on a five-point response scale, ranging from strongly disagree (0) to strongly agree (4), and divided by 4.

Question*	Rationale	Enforcement strategy	Basis for scoring
<p>F3. (S) To what extent do you agree with the following statements: 'The opportunities for pre-clearance available from the enforcer of financial statements are sufficient'.</p>	<p>The use of pre-clearance is an important aspect of the persuasion strategy as it enables enforcers to have a flexible enforcement based on an open dialogue with the enforced entity. This question measures whether the enforcers have been able to establish perception that pre-clearance is an opportunity with the issuers (Aryes and Braithwaite 1992, Djankov et al. 2003, Shleifer 2005, Jackson 2006, 2007, Coffee 2007, Baldwin et al. 2010, 2012, ESMA 2014, Choi et al. 2016).</p>	<p>Persuasion</p>	<p>The scoring is based on a five-point response scale, ranging from strongly disagree (0) to strongly agree (4), and divided by 4. This is considered to be a combined-question, as the score of this question is added to the score of question F2. The sum of the two scores is divided by two in the indices.</p>

* 'S' indicates that these questions are answered by regulatory specialists. Other questions are answered by the enforcement bodies.

Appendix B. Modified Brown et al. (2014)

The first construct removed from the original Brown et al. (2014) enforcement index is item #1 (Regulatory body). This construct measures whether a country has established a body that is responsible for monitoring and promoting compliance with accounting standards. This measure may be relevant from a global perspective, but it is irrelevant from a European perspective, as regulation 1606/2002 requires all countries to establish an enforcement body that monitors and promotes compliance with the financial framework.

The second construct removed is item #2 (Power to set accounting standards). According to Brown et al. (2014, p.16), this construct is included because it *'...is likely to be associated with higher degree of financial reporting because it suggests activity, involvement and responsibility in relation to auditing and standard setting norms'*. Our enforcement index does not contain a similar construct as we find it questionable whether the ability to set accounting standards actually enhances the ability to perform the enforcement of financial reporting, The issuing of accounting standards risks undermining flexible and agile enforcement due to political compromises made during the accounting setting process. Our position is supported by both ESMA and SEC as they rely on the International Accounting Standards Board (IASB) and Financial Accounting Standards Board (FASB) to set and issue accounting standards, respectively. In fact, ESMA even discourages the issuing of general IFRS application guidance (ESMA 2014).

The third construct removed is item #6 (Level of sourcing). This construct measures the number of staff in the enforcement body per million of population. This measurement is based on the index created by Jackson and Roe (2009). Jackson and Roe (2009) have based their measurement on *'How Countries Supervise Their Banks, Insurers and Securities Markets'* from 2006 and 2007, which focuses on the enforcement of financial institutions and securities markets, and not the enforcement of financial

reporting.¹⁴ Consequently, the figures used include enforcement activities around other areas than financial reporting enforcement. In our survey, we asked for the level of staff resources involved in financial reporting enforcement; however, the answers were of poor quality. Survey responses often included staff members involved in activities other than financial reporting enforcement when the enforcement body had additional responsibilities.

¹⁴ Jackson and Roe (2009) provide data on 15 of our 17 countries and only 6 of the countries provide direct data for their budgeting and staffing of supervision. The data for the remaining 9 countries are either extrapolated on a median ratio (4 countries), or estimated from a ratio of enforcement activities relatively to the agencies total activity level (5 countries) (Jackson and Roe 2009).

Appendix C. Aligning index with constructs in modified Brown et al. (2014)

In the first construct in the adjusted enforcement index (Item #3, Reviews of financial statements), Brown et al. (2014) examine whether the enforcement body actually undertakes reviews of financial statements. We use two items from our index that we believe measure the variation in the review activities across countries. The first item (B1) measures the ratio of companies under enforcement that have been reviewed during the year. The second item (B3) measures the powers of the enforcers performing the review, i.e., what responsibilities does the enforcer have (review, decision, actions, pre-clearance and informal guidance)?

In the second construct in the adjusted enforcement index (Item #4, Reports surveillance programme), Brown et al. (2014) measure whether the enforcement body publicly reports outcomes of their reviews. We use two items from our index to capture this construct. The first item (E3) measures how enforcement decisions are communicated, i.e., if all or some of the enforcement decisions are made publicly available, either fully or partially. The second item (E5) measures whether omissions and/or misstatements identified by the enforcers are communicated to the enforced entity, even if they are immaterial.

In the third and final construct in the adjusted enforcement index (Item #5, Taken enforcement actions), Brown et al. (2014) measure whether enforcement activities lead to enforcement action. The construct is measured by two items from our survey where the first item (D1) measures which actions are available and the frequency with which they have been used over the past 3 years. The second item (D3) measures whether the enforcer can impose additional sanctions if the enforced entity does not respond to the enforcement decisions and actions already imposed upon it.

The three constructs are weighted equally, and the two items making up each construct carry the same weight.

**The impact of enforcement and materiality assessments on firms'
mandatory disclosure decisions**

Carsten Allerslev Olsen

Copenhagen Business School

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Abstract

This study discusses how the strictness of financial reporting enforcement, the applied enforcement strategy, and the materiality assessment impact firms' mandatory disclosure decisions. Based on a sample covering 285 firms in 12 European countries, this study finds that immaterial items exhibit a significantly lower level of compliance with the mandatory disclosure requirements of IAS 36, than material items. This indicates that preparers conduct a materiality assessment when deciding on the level of mandatory disclosures, and that the materiality assessment considers both the absolute and relative size of the item being disclosed. The strictness of enforcement is a significant determinant of the level of compliance. However, this holds true only if the enforcement is based on either the deterrence enforcement strategy or a combination of the deterrence and persuasion enforcement strategies, as the persuasion enforcement strategy does not appear to influence the level of compliance. Furthermore, the study finds that the strictness of financial reporting enforcement does not significantly influence materiality assessment. Thus, the findings of this study do not support the argument that a strict enforcement forces preparers to disclose immaterial information.

Key words: Financial reporting enforcement, Materiality, Materiality assessment, Enforcement strategy

Introduction

Users, preparers, and academicians have criticised the ever-growing number of disclosure requirements in IFRS to increase the complexity and decrease the transparency of financial statements (Schipper 2007, FRC 2009, 2011, EFRAG 2012, 2013, IASB 2013). This criticism is centred on two elements. First, firms are criticised for not applying the materiality concept accurately in regard to mandatory disclosures. Second, a strict financial reporting enforcement is criticised for forcing preparers to include all mandatory disclosures in the financial report, even when the disclosures are immaterial. Together, these two elements and the absence of a conceptual framework for mandatory disclosures are considered to cause information overload and poor transparency in financial reports (Schipper 2007, Beyer et al. 2010, Barker et al. 2013, FASB 2015). This study examines whether the strictness of enforcement, the applied enforcement strategy, and the materiality assessment affect the level of mandatory disclosures provided by preparers.

Materiality is pervasive in the preparation of the financial report, as it provides a threshold for determining when an item can reasonably be expected to influence the decisions of the primary users. Thus, materiality warrants separate presentation, either in financial statements or notes (IAS 1.29-31, IASB 2010, 2015a, IASB 2017). However, the literature on materiality is limited and focuses on the materiality assessment of preparers, auditors, regulators, and enforcers rather than the users (Iskandar and Iselin 1999, Brennan and Gray 2005, Eilifsen and Messier 2014, Barker et al. 2013). Furthermore, this literature focuses on the materiality assessment of recognition rather than of disclosures. It is important to distinguish between the materiality assessment of recognition and that of disclosures, as materiality assessment is split into two elements: misstatements and omissions. Misstatements relate to the financial statements (Palmrose and Scholz 2004), while omissions relate to both the financial statement and disclosures (IAS 8.5). Omissions and misstatements in the financial statement are assessed relatively to a pre-determined threshold which measures whether the omission or misstatement is material (Eilifsen and Messier 2014). However, a pre-

determined threshold may not be particularly useful in assessing the materiality of disclosures as these may have been omitted because either the information is immaterial or the firm is unwilling to disclose the information, or simply because the information has a value of zero. However, the information may still be material if assessed on qualitative factors and thus warrants disclosure in the notes. Because materiality assessment is persuasive in the preparation of the financial report, it becomes essential to understand how materiality is applied in regard to mandatory disclosures. Previous literature on materiality and mandatory disclosures has left this area largely untouched.

Previous research indicates that the benefits of International Financial Reporting Standards (IFRS) adoption are only achieved if the adoption is coupled with a strict financial reporting enforcement (Hail and Leuz 2006, Daske et al. 2008, Christensen et al. 2013). Furthermore, research suggests that a strict enforcement ensures that IFRS is adopted in substance and not just in words (Daske et al. 2013). However, a strict enforcement is also criticised for forcing preparers to disclose all mandatory disclosures without consideration of the relevance and usefulness of the information (FRC 2009, 2011, IASB 2013, ESMA 2012, IAASB 2012, FASB 2015). In other words, a strict enforcement is criticised for suspending the materiality assessment of mandatory disclosures. This makes the notes lengthier and more complex, which decrease the transparency and usefulness of the financial report. However, no existing studies have investigated if a strict enforcement truly suppresses the materiality assessment of disclosures. This study aims to investigate not only how enforcement interacts with materiality assessment but also how different enforcement strategies impact the level of mandatory disclosures, and if preparers actually apply a materiality assessment on mandatory disclosures.

This study focuses on compliance with the disclosure requirements in IAS 36 – Impairment of Assets. This standard is chosen because preparers find it challenging (Glaum et al. 2013) and because it has been a focus area for European enforcers (ESMA 2014, 2015). The study is based on a hand-collected sample

measuring individual firms' level of compliance with the disclosures required by IAS 36. The level of compliance is analysed based on the 2014 financial report, covering 285 firms in 12 European countries. Using the firms' goodwill as the disclosed item and comparing it with the estimated planning materiality level¹⁵, the study finds that firms make more mandatory disclosures when goodwill is material relatively to when it is immaterial. In other words, firms make more mandatory disclosures when goodwill exceeds the planning materiality level and fewer mandatory disclosures when goodwill is below the planning materiality level. This indicates that preparers do apply a materiality assessment when deciding the level of mandatory disclosures. Interestingly, the study finds that both the absolute and relative levels of goodwill affect the level of disclosures and that the level of compliance exhibits insignificant differences once goodwill is material.

Further, the study investigates how enforcement and its application impact the level of mandatory disclosures and preparers' materiality assessments. The study finds that enforcement and the applied enforcement strategies are significant determinants of the level of compliance with mandatory disclosures. An enforcement strategy¹⁶ comprising a combination of the deterrence and persuasion strategies (total enforcement) exhibits a significant and positive impact on the level of compliance, that is, firms disclose more. A similar pattern is evident if the deterrence enforcement strategy (deterrence) is applied, while the persuasion enforcement strategy (persuasion) has an insignificant influence on the level of compliance. This is a novel finding as previous studies have only focused on the strictness of the enforcement and not the applied enforcement strategy. Finally, the study finds that a strict enforcement does not significantly influence the preparers' materiality assessment on disclosures, regardless of the applied enforcement

¹⁵ Please see footnote 25 for an explanation on how planning materiality is estimated.

¹⁶ The difference in the enforcement strategies may shortly be described as follows: The deterrence strategy seeks to ensure compliance through the use of sanctions and penalties. On the other hand, the persuasion strategy attempts to ensure compliance by using dialogue, encouragement, and education. The two strategies may be combined into what this article calls the total enforcement strategy. The enforcement strategies are discussed in further detail in sub-section 'Enforcement' under the section 'Background and hypothesis development'.

strategy. This implies that preparers continue to apply a materiality assessment on mandatory disclosures, even when operating under a strict enforcement regime.

This study contributes to the existing literature in several ways. First, it extends the existing literature by investigating how different enforcement strategies impact the level of mandatory disclosures. Previous literature has analysed the effects of enforcement by applying enforcement indices, which are broad measurements of enforcement, without considering different ways of applying the enforcement. Consequently, very little is known about how differences in the enforcement strategies impact financial reporting. By considering the applied enforcement strategy while analysing the effects of financial reporting enforcement provides a new and more nuanced perspective on the effects of enforcement.

Second, the study extends the existing literature by investigating how enforcement influences the level of mandatory disclosures by applying enforcement indices which measure the actual public financial report enforcement. Thus, the study provides evidence that public enforcement of financial reporting matters in regard to mandatory disclosure, if an appropriate enforcement strategy is applied. Previous studies utilise enforcement indices which measure the 'rule-of-the-book' rather than the actual performed enforcement (Holthausen 2009, Johansen et al. 2018). Applying the formal enforcement proxies used by previous literature yields mixed results as only two of the four enforcement proxies¹⁷ exhibit a significant and positive impact on the compliance level, that is, a strict enforcement increases the level of compliance. The remaining two enforcement proxies exhibit insignificant results. This raises the question whether the results of previous studies are reliable and provide an accurate picture of the effects of enforcement.

¹⁷ The four formal enforcement proxies are as follows: Legal origin (La Porta et al. 1998); general legislative and legal environment (Kaufmann et al. 2014); activity of enforcement bodies (Brown et al. 2014); and debt enforcement (Djankov et al. 2008). For additional information on the test results, see the section entitled 'Robustness tests'.

Third, the study extends the scarce literature on disclosure of materiality assessments. Previous literature investigating disclosure of materiality assessments usually focuses on the auditors' perception of materiality (Eilifsen and Messier 2014). This study focuses on materiality from the preparer's perspective and uses the actual disclosures provided in the 2014 financial reports to assess the preparers' materiality assessment. The preparers' materiality assessment is analysed by different measurements and perspectives on materiality.

Fourth, the study examines how the joint effects of financial reporting enforcement and the materiality assessment impact the compliance level. Several parties have argued that a strict enforcement forces preparers to discard the materiality assessment and include immaterial information (FRC 2009, 2011, IASB 2013, ESMA 2012, IAASB 2012, FASB 2015). However, no studies have investigated whether these allegations are well founded or not. The answer to this question is important as it provides insights into the factors preparers consider during the materiality assessment, and thereby which items are disclosed in the financial report. This study is the first to provide such insights.

The article is organised as follows. The next section outlines the background for mandatory disclosures along with the development of the research hypotheses. The third section describes the data employed, its collection and the research design. Descriptive statistics and correlation analysis follow in the fourth section, while the empirical results are analysed and presented in the fifth section. Robustness tests are conducted in the sixth section and the article closes with a brief summary and conclusion.

Background and hypothesis development

Mandatory disclosure – Effect and value

The purpose of the general financial statement is to provide financial information to existing and potential capital providers¹⁸ (Healy and Palepu 2001, IASB 2010, FASB 2010, EFRAG 2012). Accounting information allows potential capital providers to evaluate the return on their investment opportunities (the valuation perspective) and existing capital providers to monitor the management of the invested resources (the stewardship perspective). It is the firms' management that discloses the financial information which is based on an evaluation of the information needs and relative strength of the potential and current capital providers (Gjesdal 1981, Beyer et al. 2010). Research indicates that firms only disclose information if they have an incentive to do so, or if the information has a private or social value (Solomons 1991, Admati and Pfleiderer 2000). Some firms may therefore not voluntarily disclose the information needed by the capital providers as firms do not expect to benefit from the disclosure. To ensure that the information is provided, regulation may therefore mandate its disclosure (Leuz and Wysocki 2016).

A solid framework specifying when regulation should require specific information disclosed does not exist. However, several reasons have been put forth to justify mandatory disclosures (Leuz 2010). First, the social value of the information exceeds the private value for the firm due to the existence of positive externalities. In such circumstances, firms will not disclose enough information on a voluntary basis which may lead to private over- or under-production of information. Regulation may mitigate this problem by requiring firms to disclose information to match the socially optimal level of disclosure. Second, a mandatory regime can ensure cost savings at the market level. For example, one entity (regulator) can establish a common set of disclosure requirements rather than having each capital provider setting their

¹⁸ The term 'existing capital providers' covers both existing and potential investors, lenders and other creditors (IASB 2010).

own disclosure requirements. This set-up will reduce the accumulated agency costs at the market level.

Third, the sanctions for non-compliance are only enforceable through public enforcement activities and not through private enforcement activities (Admati and Pfleiderer 2000, Coffee 2007, Barker et al. 2013, Leuz and Wysocki 2016). Fourth, mandatory disclosure ensures that both the potential and current capital providers are provided with a satisfactory level of information as failure to do so may have severe consequences (Akerlof 1970).

Potential and existing capital providers have different information needs. Potential capital providers request information to evaluate the profitability of future investment opportunities. As outsiders, they risk over-pricing firms with low profitability prospects and under-pricing those with high profitability prospects. Thus, a rational capital provider values both firms at an average price, which eventually may lead to a market breakdown (Akerlof 1970). Firms with high profitability prospects will remedy this 'lemon problem' by providing additional disclosures (Beyer et al. 2010, Leuz and Wysocki 2016). Existing capital providers (principles) request information to help them resolve the problem caused by hiring a professional agent to supervise the daily operations. The professional agent (steward) can only effectively manage the daily operations if he is equipped with some degree of decision-making power. However, the transfer of decision-making power may entice the agent to pursue his own interests rather than those of the principles (Jensen and Meckling 1976). The principles may resolve this problem by monitoring the behaviour of the agent by using information systems or outcome-based contracts (Eisenhardt 1989). Existing capital providers therefore demand information which they can use to monitor and determine the efforts and ability of the steward. However, the relationship between the agent and the principles is not permanent as current capital providers may withdraw their invested resources any time. Under such circumstances, the principles are faced with the lemon problem as they must identify a willing buyer among the potential capital providers. Consequently, both current and potential capital providers are interested in receiving

transparent and reliable information about a firm. However, the timing of when the information is made publicly available differs. Mandatory disclosures may help level the playing field and ensure a continuous and uniform flow of financial information.

Notes and mandatory disclosure requirements

The purpose of the notes is to amplify, elaborate or explain figures recognised in the financial statement and to provide information not presented elsewhere, if relevant for the understanding of the financial report (IAS1.112, FASB 2008). Disclosures mandated by individual accounting standards must be included in the financial report if the information is material and if the benefits are expected to exceed the costs of providing the information (FASB 2008, 2010, IASB 2010¹⁹, IAS 1.31). In fact, IAS 1.31 specifically stresses that immaterial information should not be disclosed, even if it is required to be disclosed by a specific IAS/IFRS accounting standard. However, firms must evaluate if the mandated disclosures are sufficient to enable the users to understand the impact of a particular transaction or event, or if additional disclosures are needed to enhance the understanding of the transaction or event. Consequently, firms are provided with a considerable degree of judgement when deciding what to disclose.

Previous studies show that firms do not fully comply with all mandatory disclosure requirements and that the level of compliance is influenced by both firm characteristics and institutional settings (Cooke 1989, Street and Gray 2002, Glaum and Street 2003, Tsalavoutas 2011, Glaum et al. 2013, Tsalavoutas and Dionysiou 2014, Tsalavoutas et al. 2014). Firm characteristics include attributes such as being listed in the US, size, auditor, and industry. Institutional settings include factors such as the strictness of the financial reporting enforcement, culture, and size of national capital market. The explanatory variables in this study

¹⁹ In FASB, 2008 (Statement of Financial Accounting No. 5), the cost constraint is mentioned in paragraph 63. In FASB, 2010 (Statement of Financial Accounting No. 8 – Conceptual Framework for Financial Reporting: Chapter 1, The Objective of General Purpose Financial Reporting, and Chapter 3, Qualitative Characteristics of Useful Financial Information), the cost constraint is mentioned in paragraph QC35-QC39. In IASB, 2010 (Conceptual Framework for Financial Reporting 2010), the cost constraint is mentioned in paragraph QC35-QC39.

are materiality and enforcement. Factors known to influence the level of compliance are included as control variables. The research hypotheses are developed below along with an elaboration of the explanatory variables in the section 'Research Methodology'.

Materiality

The concept of disclosure materiality has received increasing attention owing to the discussion of reducing the complexity and increasing the transparency of financial reports, that is, the cutting clutter discussion. Several organisations have issued discussion papers, exposure drafts and hearings on materiality, which have identified three problems with the application of materiality (EFRAG 2012, ESMA 2011, 2012, IAASB 2012, IASB 2013, 2015b, FASB 2015). First, preparers, auditors, regulators, and enforcers should become better at assessing materiality. Doing so is expected to increase the understandability and transparency of financial reports (ESMA 2012, IASB 2013, 2015a). Second, the materiality assessment for disclosures should be based on similar considerations as the materiality assessment of items in the primary statement; however, such assessment should focus more on the qualitative aspects of the information (ESMA 2012, FASB 2015, IASB 2017). Third, the concept of materiality must be well understood by the participants, except users, as half of them have expressed concerns about the clarity and understandability of the concept (ESMA 2012).

Previous literature finds that the materiality assessment for recognised items is primarily conducted based on quantitative thresholds, estimated on a set of relatively clear criteria (Iskandar and Iselin 1999, Brennan and Gray 2005, Eilifsen and Messier 2014) while the materiality assessment for disclosures are less clear. Iselin and Iskandar (2000) find that auditors have a significantly lower threshold for recognition than for disclosures. They also find that the industry of the audited firm influences auditors' materiality assessment. The Financial Accounting Standards Board (FASB) finds that materiality assessments usually focus almost entirely on the magnitude of monetary amounts, even for disclosures (FASB 2015). Similarly, Christensen

and Ryttersgaard (2016) find that preparers and auditors primarily focus on quantitative measures in their materiality assessment of disclosures, especially the actual amounts. Gleason and Mills (2002) find that disclosures for contingent tax liability increase with the amount of the tax claim, that managers assess materiality based on stable measurements and that the applied thresholds are difficult to identify. IASB (2017) suggests in their Practice Statement 2 that the materiality assessment should follow a four-step process and that the assessment is based on a set of materiality factors²⁰. Further, they suggest that the identification of an initial quantitative threshold which may later be modified by quantitative factors could be a practical approach towards a materiality assessment of disclosures (IASB 2017, ar.54). Thus, it appears that the materiality assessment of disclosure is blurred and focuses on quantitative factors.

According to the definition of materiality (IASB 2010, par QC11, 2015b, par. IN2) the materiality assessment requires consideration of both qualitative and quantitative factors. The materiality assessment is split into two elements: misstatements and omissions (IAS 8.5). Misstatements relate to the primary financial statement (Palmrose and Scholz 2004), while omissions relate to both the primary financial statement and disclosures (IAS 8.5). Both are typically assessed relatively to a pre-determined threshold (Eilifsen and Messier 2014). Further, disclosures may be omitted if they are irrelevant or immaterial (IAS 1.31). Since disclosures may be purely descriptive and/or explanatory in nature and have a book value of zero, a materiality threshold may be of little use. The materiality assessment becomes even more complicated when two users may assign different levels of importance to the same disclosures (Barker et al. 2014). Consequently, the assessment of materiality becomes a matter of professional judgement. In these situations, a pre-determined materiality threshold is not particularly useful as it fails to disclose the

²⁰ Materiality factors are divided into quantitative and qualitative factors which are identified by the firm based on the requirements of IFRS standards and the firms' knowledge about information needs of the primary users (IASB 2017). Quantitative factors are typically measured as a threshold, such as a specific level, rate, or amount. On the other hand, qualitative factors are characteristics of a transaction, other events, and conditions or of their context which are likely to influence the decision of the primary user. Furthermore, qualitative factors may be either entity-specific or external (IASB 2017. Par. 44-51).

information needed by the stakeholders. A quantitative threshold may be seen as a proxy for the true materiality of the item and as a practical usage of the materiality concept in the daily operations. However, a quantitative threshold is not always sufficient to conclude if an item is material (IASB 2017).

In principle, materiality should have a direct effect on the compliance level with mandatory disclosures as firms should exclude immaterial disclosures from the financial report. This will, ceteris paribus, cause the number of undisclosed items to increase and thereby decrease the level of compliance. Furthermore, a strict application of the materiality concept will cause a steep increase in compliance at the materiality threshold, as firms begin to adhere to the mandatory disclosure requirements. If the absolute amount is considered during the materiality assessment, firms with very high absolute amounts will exhibit relatively higher levels of compliance than those with low absolute amounts. This leads to the following hypothesis:

Hypothesis 1: *The materiality of a disclosure item is positively associated with the degree to which firms comply with mandatory disclosure requirements.*

Enforcement

Enforcement has been identified as a key determinant if the benefits of adopting a set of high-quality accounting standards are to be realised (Hail and Leuz 2006, Daske et al. 2008, Christensen et al. 2013). Hail and Leuz (2006) find that firms located in countries with stringent security regulations, stricter enforcement mechanisms and extensive disclosure requirements experience a significantly lower cost of capital. Daske et al. (2008) find that IFRS adoption is associated with significant beneficial capital market effects (cost of capital and Tobin's q), but only if the firms are located in countries with relatively strict enforcement regimes and if there exists an institutional incentive for firms to be transparent.

Enforcement is also found to ensure firms' compliance with accounting standards in substance rather than in words (Daske et al. 2013, Glaum et al. 2013, Tsalavoutas et al. 2014, Preiato et al. 2015). Daske et al.

(2013) find that firms adopting IFRS in substance rather than in words experience beneficial capital market effects in the form of lower cost of capital and increased liquidity, which supports the findings of their previous study (Daske et al. 2008). Glaum et al. (2013) find that a strict enforcement environment increases the compliance with mandatory disclosures. Tsalavoutas et al. (2014) find that the enforcement of financial reporting requirements is ineffective in ensuring compliance with mandatory disclosures, but that the enforcement of auditors has a significant impact. Preiato et al. (2015) find that analysts' consensus forecasts and the level of disagreement among analysts are lower for firms located in countries with a strong enforcement environment. Collectively, studies on enforcement indicate that enforcement is key for ensuring compliance and achieving the benefits of a set of high quality accounting standards.

Previous studies investigating the effects of enforcement utilise different proxies to measure the strictness of enforcement. Most of the utilised proxies do not capture the actual public financial reporting enforcement activities, but rather the general enforcement environment, or at best the formal rules of the financial reporting enforcement (Johansen et al. 2018). Thus, it remains unclear how the actual public financial reporting enforcement affects compliance with accounting standards. This leads to the following hypothesis:

Hypothesis 2: *The strictness of financial reporting enforcement is positively associated with the degree to which firms comply with mandatory disclosures requirements.*

The actual enforcement can be implemented through various strategies among which the most common is a combination of two opposing arch-types (total enforcement) (Ayres and Braithwaite 1992, Baldwin and Cave 1999, Baldwin et al. 2010, 2012). The first arch-type is the deterrence strategy which attempts to ensure compliance by punishing non-compliers. The punishment may include criminal sanctions, license suspension and revocation (Ayres and Braitwaite 1992, Baldwin et al. 2010, 2012). The persuasion strategy

is the second arch-type and it attempts to ensure compliance by dialogue, encouragement, and education (Ayres and Braitwaite 1992, Baldwin et al. 2010, 2012). Choi et al. (2016) investigate how a gradual change (over 15 years) from a deterrence strategy (from 1992 to 2001) to a persuasion strategy (in 2002 and 2003) and thereafter to a combination of the two enforcement strategies (from 2004 to 2006) affects compliance with the level of general corporate disclosures. They find that the adoption of the responsive strategy is associated with a reduction in the analysts' forecast errors and the narrowing of the bid-ask spread which indicates improvement in the corporate disclosures. These findings indicate that the adoption of a mixed enforcement strategy helps regulators to better ensure compliance with disclosure requirements (Choi et al. 2016). The apparent importance of enforcement strategies and the lack of studies investigating their effects lead to the third hypothesis which is as follows:

Hypothesis 3: *Different enforcement strategies are differently associated with the degree to which firms comply with mandatory disclosure requirements.*

Moderating effect of enforcement on materiality

Enforcers have been accused of following a 'tick-the-box' enforcement approach towards disclosures, which forces preparers to disclose immaterial information (ESMA 2012, IAASB 2012, IASB 2013, 2015b). A 'tick-the-box' enforcement approach effectively means that the materiality assessment is suspended as all mandatory disclosure requirements are complied with, irrespective of their materiality. This effect varies with the strictness of the enforcement. The strictness of enforcement has been proven to influence compliance with accounting standards (Hail and Leuz 2006, Daske et al. 2008, 2013, Christensen et al. 2013, Glaum et al. 2013, Tsalavoutas et al. 2014; Preiato et al. 2015). Materiality is pervasive in the preparation of the financial report as it helps to determine if a piece of information must be disclosed. Consequently, it is interesting to know how enforcement interacts with the materiality assessment and in particular, if a strict

enforcement causes preparers to disregard their materiality assessment and include immaterial items. This leads to the following hypothesis:

Hypothesis 4: *The strictness of financial reporting enforcement moderates the positive association between materiality and mandatory disclosure requirements.*

Research Methodology

Data

The level of compliance with IAS 36 is chosen as representative of the general level of compliance with mandatory disclosure requirements. IAS 36 has a significant influence on the financial report because it governs the rules for the estimation of impairment charges recognised in the profit and loss statement. IAS 36 also contains a substantial number of disclosure requirements which allow for variation in the level of compliance across countries and firms. IAS 36 has been a focus area for the European enforcement authorities during the last few years (ESMA 2014, 2015). The enforcement authorities have either focused on the level and quality of the disclosures or the inputs used to estimate the recoverable amount. It is therefore assumed that preparers are intimately familiar with the disclosure requirements of IAS 36. Further, it is assumed that preparers have taken due diligence in preparing their financial statements and that any non-compliance is due to a deliberate choice, that is, all the information they wish to disclose has also been disclosed.

Sample

The sample was selected in an eight-step process. First, countries without significant merger and acquisition (M&A) activity were eliminated from the sample. Significant M&A activity is defined as M&A

transactions worth more than 1% of total M&A transactions in Europe²¹ in 2014. This selection criterion increases the likelihood that firms in the sample have goodwill, which requires a yearly impairment test in accordance with IAS 36 (IAS 36.10). Second, countries with minor capital markets are eliminated from the sample. Minor capital markets are defined as capital markets which constitute less than 1% of the total capital markets in Europe in 2012²². This selection criterion was applied to focus on the capital markets in which the majority of investors are present. Third, only firms that are constituents of the leading European stock indices as on 31 December 2014 is included in the sample. This selection criterion ensures that the study focuses on the most valuable firms and those followed by a significant number of capital providers. Fourth, firms from Austria, Italy, Luxembourg, and Switzerland have been eliminated from the sample due to inadequate enforcement data. Fifth, firms with year-ends outside the time span of 31 December 2014 through 31 March 2015, or not providing a financial statement in English, or not issuing a financial statement according to IFRS, have been eliminated from the sample. Sixth, firms with missing data have also been eliminated from the dataset. Seventh, firms not audited by a Big-4 auditing firm are eliminated from the dataset as this will make the dataset more homogeneous. Eighth, countries with five or fewer observations after taking into account the above listed criteria are eliminated from the sample. Firms with listings on multiple stock exchanges are included only once. Based on these criteria, the sample was reduced from 509 potential firms to 285 firms. The allocation of firms across countries and industries is shown in Table A.

²¹ The European region is defined in Thomson ONE as comprising the following countries: Albania, Andorra, Austria, Belarus, Belgium, Bosnia & Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Faroe Islands, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hungary, Iceland, Ireland, Isle of Man, Italy, Jersey, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Monaco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, San Marino, Slovakia, Slovenia, Spain, Svalbard and Jan Mayen, Sweden, Switzerland, Turkey, Ukraine, United Kingdom and Yugoslavia. The completed M&A transactions for member countries of the European Union and Norway and Switzerland amount to USD 564 billion, which is equivalent to EUR 457 billion.

²² The World Bank does not provide data for more recent periods on the capitalisation of listed companies. The total capitalisation values of listed companies amount to USD 11,732 billion which is converted to EUR 8,899 billion using the year-end cross-currency rate listed by the Danish National Bank as of 30 December 2014.

[Insert Table 1 – Overview of sample by country and industry]

Dependent variable – Level of compliance

The dependent variable is the level of compliance with IAS 36. The data used to calculate the level of compliance is collected by hand from the 2014 consolidated financial reports. Following Street and Gray (2002), Glaum and Street (2003), Glaum et al. (2013), Tsalavoutas and Dionysiou (2014) and Tsalavoutas et al. (2014), a checklist was developed containing all mandatory disclosure requirements of IAS 36, effective 31 December 2014. All mandatory disclosure requirements were included in the checklist to avoid potential selection bias. The final checklist contains 46 individual disclosure items.

The items on the checklist were coded as 1 (disclosed), 0 (not disclosed) or n/a (not applicable). The coding required some degree of judgement because it was necessary to evaluate whether a disclosure requirement was complied with, not complied with, or not applicable. Firms were therefore given the benefit of doubt, if there was any doubt about the compliance or applicability of an item. In these cases, the item was coded as not applicable. For example, it is assumed that a firm which writes in its principle accounting policy section that it reverses impairment charges (tangible assets), but does not provide a specification of its reversals, has not had any reversals during the year. This approach will result in an upward bias in compliance.

The data were collected with the help of seven research assistants who, independently of each other, collected data for 168 observations (firms). The research assistants compared the collected data to check for any overlap in the observations (118 observations). Overlapping observations were compared and the identified discrepancies were discussed and settled among the research assistants. The sample was then finalised by the research assistants and sent to the researcher. Eighty observations in the final sample were re-performed by the researcher. This re-performance revealed only minor discrepancies. The remaining

part of the sample (117 observations) was collected by the researcher. Of the 117 observations, the first 24 observations collected were re-performed by the researcher at the end of the collection process. An additional 13 observations were selected (using a haphazard method, and excluding the first 24 observations) and re-performed by the researcher at the end of the collection process. This re-performance only revealed minor discrepancies. Thus, approximately 41% of the final sample was been re-performed and verified.

Following Cooke (1989), Street and Gray (2002), Tsalavoutas (2011), Glaum et al. (2013), Tsalavoutas and Dionysiou (2014) and Tsalavoutas et al. (2014), the level of compliance is calculated as the ratio of items complied with over the total applicable number of items (aggregated number of items complied with and not complied with)²³. Users of financial reports may prioritise some information over others, which argues for weighing the different disclosure requirements relatively to this prioritisation. However, it has not been possible to identify objective weights for the individual disclosure requirements without introducing significant selection bias. Consequently, all disclosure items are weighted equally as they are assumed to be of equal importance. The level of compliance is therefore considered to provide a true and fair view of the disclosures as envisioned by the firms.

Independent variables

The independent variables are divided into explanatory variables, for which hypotheses have been developed, and control variables. This section contains a description of how the explanatory and control variables have been measured and the reasons for including the individual control variables. Table 2

²³ For example, assume that there is a total of 40 disclosure items. Also assume that the firm is compliant with 15 items and non-compliant with 4 items. The remaining 21 items are not applicable for the firm. Then the level of compliance of the firm is 79% ($15/(15+4)=0.789$). Items considered not applicable for the firm are, as shown by this example, not included in the ratio for level of compliance.

defines the independent variables and the data source. Panel A of Table 2 contains information on the explanatory variables, while Panel B contains those pertaining to the control variables.

Explanatory variables

Materiality

Hypothesis 1 questions whether preparers apply a materiality assessment when preparing the items for mandatory disclosure in the financial report. The materiality assessment should include an assessment of both quantitative and qualitative characteristics; a perfect measurement of materiality must therefore consider both of these characteristics. The measurement of materiality used in this article is based solely on quantitative characteristics due to limitations in the available resources and lack of access to relevant information. However, it seems reasonable to assume that the quantitative threshold used is a fair proxy for the true materiality while also being a pragmatic application of the qualitative materiality assessment. This is considered especially true in regard to the disclosures about impairments as the information disclosed largely depends on the importance of the underlying assets, and especially the size of goodwill. The reason for this is that impairment charges must be offset against goodwill before other asset classes in the cash-generating unit (IAS 36.104a). Consequently, a quantitative materiality measure is in this instance considered to be a fair representation of the materiality assessment.

Materiality is proxied by the line item 'goodwill' because impairment charges must be offset against goodwill before they are allocated to the remaining assets of the cash-generating unit. Because of this, goodwill is considered to be a good proxy for materiality, even though it does not capture non-goodwill impairments. The reason for this is that all firms included in the sample have some amount of goodwill. Materiality is analysed from four different perspectives. The first measure (ABSOLUTE) is based on the absolute (log) size of goodwill. The debate on materiality suggests that preparers carefully consider the

absolute size of goodwill (ESMA 2012, IAASB 2012, IASB 2013, 2015b, 2016, 2017, FASB 2015, Christensen and Ryttersgaard 2016). ABSOLUTE is expected to have a positive association with compliance as a higher amount of goodwill, ceteris paribus, is accompanied by more disclosures. The second measure (RELATIVE) considers goodwill relative to the planning materiality level of the firm and is calculated by dividing the absolute amount of goodwill with the planning materiality level²⁴. This measure covers the relative aspect of materiality. The planning materiality level is calculated based on the guidelines used by the Big 4 auditors²⁵ (Eilifsen and Messier 2014) and relevant auditing standards (IAASB 2009a, 2009b, PCAOB 2010a, 2010b). The third measure (IMMATERIAL) is an indicator variable and it is coded 1 if goodwill is smaller than the level of the planning materiality and 0 if goodwill exceeds the planning materiality level. IMMATERIAL is expected to have a negative influence on compliance because immaterial items are omitted from disclosure in the financial report and consequently coded as non-compliant. The fourth measure (QUARTILED MATERIALITY) is an indicator measurement of RELATIVE partitioned into quartiles. This measure is included to measure how different levels of relative materiality influence the compliance level. It is expected that the lower quartile (0% to 25% of the observations with the lowest relative materiality) is negatively associated with compliance because this quartile primarily contains firms with immaterial levels of goodwill. The direction of the other quartiles is unpredictable as these quartiles should be insignificantly different from each other.

²⁴ For example, assume that the absolute amount of goodwill is EUR 1,000k and the planning materiality level is EUR 500k; then, the value of the variable RELATIVE would be 2 ($1,000/500=2$), thereby indicating that goodwill is material for the firm. On the other hand, if the absolute amount of goodwill is EUR 250k, the value of the variable RELATIVE would be 0.5 ($250/500=0.5$), thereby indicating that goodwill is immaterial for the firm.

²⁵ The planning materiality level of the individual firms is based on the average of the following four measures: total assets (average of 0.5% and 1%), net income (average of 5% and 10%), total revenue (average of 0.5% and 1%) and equity (average of 1% and 5%).

Enforcement

Enforcement (ENFORCEMENT) is measured by the three enforcement indices developed by Johansen et al. (2018). The indices are based on a questionnaire covering both the formal enforcement (rules-of-the-book) and the actual performed enforcement. The respondents of the questionnaire are European enforcement bodies and regulatory specialists of a Big 4 auditing firm in 17 European countries. The indices provide a more accurate measurement of financial reporting enforcement than other available enforcement indices which are based on either the general rules of law or the formal rules of financial reporting enforcement (Johansen et al. 2018). The indices provided by Johansen et al. (2018) are anonymous, which means that specific information in the indices are undisclosed at a country level. The indices in Johansen et al. (2018) measure enforcement based on different enforcement strategies. The first index measures the total enforcement (combination of the deterrence and persuasion strategies) and the second index measures enforcement if it is applied following the deterrence strategy. The third index measures enforcement performed according to the persuasion enforcement strategy. The three indices are anonymous and taken from an unpublished paper, which is why the results are compared with previous indices used in the accounting literature. This is partly done to verify the results obtained by using the index and partly to make the results comparable with the previous literature. The comparison uses enforcement indices developed by La Porta et al. (1998), Djankov et al. (2008), Kaufmann et al. (2014) and Brown et al. (2014) and is included as part of the robustness tests. It is expected that ENFORCEMENT has a positive association with compliance.

[Insert Table 2 – Overview of independent variables – description and source – around here]

Control variables

Several control variables are included to capture the effect of different factors documented in previous studies and considered to influence the level of compliance. The control variables are as follows: auditors, cultural characteristics, capital markets, industry type, US-listing, size of the firm, profitability, corporate governance, and ownership concentration. Each control variable is described shortly below.

Auditors

Previous studies find that firms being audited by Big 4 auditing firms exhibit a higher level of compliance than those audited by non-Big 4 auditing firms (Cooke 1989, Street and Gray 2001, Glaum and Street 2003, Tsalavoutas 2011, Glaum et al. 2013, Tsalavoutas et al. 2014, Cascino and Gassen 2015). However, while none of the firms included in this sample are audited by non-Big 4 auditing firms,²⁶ an indicator variable is included to test for differences between the Big 4 auditors. It has not been possible to set the direction of the individual indicator variables.

Industry of the firm

Previous studies have found that some industries adopt specific accounting policies and interpretations of the general accounting rules and firms in similar industries are exposed to the same level of competition, risk, and regulation (Herrmann and Thomas 1996, Jaafar and Mcleay 2007, Nobes 2013). Furthermore, studies on mandatory disclosure find that industry is a significant determinant for the level of compliance (Street and Gray 2002, Glaum and Street 2003, Glaum et al. 2013, Tsalavoutas 2011, Tsalavoutas and

²⁶ In the original sample, three firms were audited by non-Big 4 auditing firms. These firms have been eliminated because they are too few to make solid statistical inferences. To reduce the noise generated from these firms, they have been eliminated from the sample. Models including the three firms show a significant negative impact, i.e. they have a significantly lower level of compliance than firms being audited by a Big 4 auditing firm.

Dionysiou 2014, Tsalavoutas et al. 2014). Industries are controlled for by a four digit ICB code²⁷. No expectation has been set for the direction of the individual industries.

Dual listing in the US

Previous studies find that a dual US listing significantly increases the accounting quality and level of compliance because US regulations are considered to be stricter than similar regulations in the rest of the world (Leuz and Verrecchia 2000, Glaum and Street 2003, Hail and Leuz 2006, La Porta et al. 2006, Hodgdon et al. 2008; Ernstberger et al. 2012, Tsalavoutas et al. 2014). This effect is controlled by the dichotomous variable US-LISTING which is expected to have a positive association with compliance.

Size of the firm

The size of the firm has been documented to have a positive association with compliance (Cooke 1989, Street and Gray 2002, Glaum and Street 2003, Glaum et al. 2013, Tsalavoutas 2011, Tsalavoutas and Dionysiou 2014, Tsalavoutas et al. 2014). The control variable SIZE is used to capture the effects of differences in the size of firms and it is expected to be positively associated with compliance.

Profitability

The profitability of a firm is used as an indicator for impairments because a Cash Generating Unit (CGU) operating at a loss, *ceteris paribus*, is subject to impairment and should thereby provide additional disclosure to explain recognised impairment charges, or the lack of impairment charges. In line with the previous literature, an indicator variable PROFIT is used to capture this effect, which is expected to be negatively associated with compliance (Street and Gray 2002, Glaum and Street 2003, Tsalavoutas 2011, Ernstberger et al. 2012, Tsalavoutas and Dionysiou 2014, Tsalavoutas et al. 2014, Cascino and Gassen 2015).

²⁷ The ICB industry categories are as follows: Oil & Gas (ICB code 0001), Industrial (ICB code 1000), Basic Materials (ICB code 2000), Consumer Goods (ICB code 3000), Healthcare (ICB code 4000), Consumer Services (ICB code 5000), Telecommunication (ICB code 6000), Utilities (ICB code 7000), Financials (ICB code 8000) and Technology (ICB code 9000). The ICB category for individual firms has been found by searching the company in Thomson One Banker.

Corporate governance

Research indicates that corporate governance influences the quality of disclosure and is usually measured by the existence of an audit committee (Bushman et al. 2006, Verriest et al. 2013). To capture the effect of corporate governance, the variable AUDIT_COM has been included. AUDIT_COM measures the number of meetings held in the audit committee during 2014 as the mere existence of an audit committee is considered to be an inadequate measure. Admittedly, the number of meetings does not provide much information about the work performed by the audit committee and may be influenced by a number of factors, such as the financial position of the firm and material transactions (M&A activity). AUDIT_COM is expected to have a positive association with compliance.

Ownership concentration

Concentration in ownership may negatively influence the level of disclosure in both positive and negative directions²⁸. Large shareholders may benefit from a less transparent financial statement (La Porta et al. 1997, Leuz and Wysocki 2016) as a large dispersion in ownership may cause individual shareholders to lose interest in monitoring the performance of the firm due to a low level of ownership or an inability to influence the decisions of the firm (Zeckhauser and Pound 1990, Barako et al. 2006). This effect is controlled for by the two control variables CLOSELY_HELD and CLOSELY_HELD² and no expectation been assigned to their direction.

Cultural characteristics

Previous studies find that national cultural characteristics influence accounting structure and practices (Gray 1988, Salter and Niswander 1995, Schultz and Lopez 2001, Glaum et al. 2013, Aggarwal and Goodell 2014). The cultural trait of being uncomfortable with uncertainty and ambiguity is characterised as

²⁸ The fact that both a high and a low level of ownership may influence level of compliance indicates that there is an inverse U-shaped relationship between the level of compliance and mandatory disclosure requirements.

conservative and has been found to have a negative influence on compliance (Gray 1988, Salter and Niswander 1995, Schultz and Lopez 2001, Glaum et al. 2013). The variable UNCERTAINTY AVOIDANCE is included to capture this effect and it is expected to be negatively associated with the level of compliance. Other cultures favour competitiveness and assertiveness, which have been associated with a positive impact on the level of disclosure (Gray 1998, Salter and Niswander 1995). This effect is captured by the control variable MASCULINITY and it is expected to exhibit a positive association with compliance. Both UNCERTAINTY AVOIDANCE and MASCULINITY are taken directly from Hofstede et al. (2010) cultural measurements which have been criticised for being outdated as they were collected between 1967 and 1973. Additional data from six cross-national studies were gathered between 1990 and 2002 and added to the dataset. However, Hofstede's cultural indicators may still be considered accurate because cultural traits only change slowly over time (Hofstede et al. 2010, Wysocki 2011).

Capital markets

Previous studies find that active capital markets create a demand for decision-useful information (Leuz et al. 2003, Frost et al. 2006, Glaum et al. 2013, Tsalavoutas et al. 2014). Following the previous literature, the effect of the capital markets (S_MARKET) is measured by the averaged ranked score of the market capitalisation of listed companies, stock traded total value (both relative to GDP) and number of listed companies relative to population in millions (Leuz et al. 2003, Frost et al. 2006, Glaum et al. 2013, Tsalavoutas et al. 2014). S_MARKET is expected to be positively associated with compliance.

Model

Following previous studies, an OLS-regression is applied to test the four hypotheses (Street and Gray 2002, Glaum and Street 2003, Tsalavoutas 2011, Glaum et al. 2013, Tsalavoutas and Dionysiou 2014, Tsalavoutas et al. 2014). A total of eight models are estimated for each enforcement strategy and the results are presented in Tables 6 and 7, panels A to C. Models 1 to 4 (Table 6) estimate the effects of enforcement and

the various measurements of materiality. Models 5 to 8 (Table 7) introduce the moderating effect of enforcement on materiality, but are otherwise similar to Models 1 to 4. Panels A to C exhibit the results of different enforcement strategies, where Panels A, B and C show the results of the mixed strategy (total enforcement), the deterrence strategy and the persuasion strategy, respectively. Following Jaccard and Turrisi (2003) and Brambor et al. (2006), the models have been centred at the mean values. This also eases the interpretation of the results as the base will be equal to the mean value. Model 1 is stated as follows:

$$\begin{aligned}
 \text{Compliance} = & \beta_0 + \beta_1 \text{Materiality} + \beta_2 \text{Enforcement} + \beta_3 \text{Closely_held} \\
 & + \beta_4 \text{Closely_held}^2 + \beta_5 \text{Size} + \beta_6 \text{US_Listing} \\
 & + \beta_7 \text{Audit_Committee} + \beta_8 \text{Profit} + \beta_9 \text{Masculinity} \\
 & + \beta_{10} \text{Uncertainty Avoidance} + \beta_{11} \text{S_Market} \\
 & + \sum_{i=11}^{20} \beta_i \text{Industry} + \sum_{j=21}^{23} \beta_j \text{Auditor} + \varepsilon
 \end{aligned} \tag{1}$$

Descriptive statistics and correlation analysis

The descriptive statistics of the independent and dependent variables are presented in Tables 3 and 4, respectively. The average level of compliance is 72.1% (median: 75.0) and the most compliant country is Denmark (mean: 82.4%; median: 83.3%) followed by Sweden (mean: 79.0%; median: 79.7%) and Ireland (mean: 78.9%; median: 77.3%). The least compliant countries are Spain (mean: 57.4%; median: 60.8%) followed by Portugal (mean: 66.0%; median: 65.9%) and the UK (mean: 69.3%; median 72.7%). Overall, only one firm complies with all relevant disclosure requirements, while 25 firms demonstrate a compliance level of 90.0% or higher. These firms are generally located in the UK (4), Germany (4), France (3) or Denmark (3).

Thirty-one firms provide 50.0% or less of the mandated disclosures and seven of these firms provide less than 30.0% of the mandatory disclosure requirements. These firms are primarily located in Spain (11) or the UK (10). These findings are in line with those of previous studies which demonstrate an average level of compliance of 55.0% to 82.8% (Cooke 1989, Street and Gray 2002, Tsalavoutas 2011, Glaum et al. 2013, Tsalavoutas and Dionysiou 2014 and Tsalavoutas et al. 2014). However, Glaum et al. (2013) and Tsalavoutas et al. (2014), which are more comparable studies that include compliance with IAS 36, find an average compliance of 72.8% and 81.3%, respectively. Analysing the level of compliance in these studies at a country level reveals close proximity with the level of compliance at a country level in this study.

The average amount of goodwill is EUR 3.483 million (median: EUR 1,087 million) with a minimum value of EUR 1.2 million and a maximum value of EUR 58.2 billion. Twenty-nine firms have goodwill in excess of EUR 10.0 billion, while 134 firms have goodwill of less than EUR 1.0 billion. The average level of materiality is EUR 574 million (median: EUR 136 million). Forty-one firms have a materiality level of more than EUR 1.0 billion and 28 of these are located in the financial industry. One hundred and twenty-five firms have a materiality level of less than EUR 100.0 million; 53 firms have goodwill below the level of materiality. Firms with immaterial goodwill exhibit an average level of compliance of 63.1% (median: 68.2%) compared to those with a material goodwill which exhibit a compliance level of 74.1% (median: 76.2%). Clients of the auditing firm KPMG exhibit the highest average level of compliance of 75.8% (median: 76.9%), while those of Deloitte exhibit the lowest average level of compliance of 66.3% (median: 65.8%). The average level of compliance increases from QUARTILE 0–25%, which has the lowest compliance level of 64.9% (median: 69.6%), to QUARTILE 75–100%, which demonstrates the highest compliance level of 76.9% (median: 80.0%). A similar pattern is observed in the average amount of goodwill which increases from EUR 1,084 million in QUARTILE 0–25% to an average of EUR 6,810 million in QUARTILE 75–100%. There is a large variation in

goodwill within the individual quartiles, which is illustrated by QUARTILE 75–100%, in which goodwill ranges from a low of EUR 301 million to a high of EUR 58,189 million.

[Insert Tables 3 and 4 around here]

The average strictness of total enforcement is 60.4 and ranges from 35 (country #8) to 89 (country #2). The average strictness of the deterrence strategy is 9.15, and country #8 has the lowest score while country #11 has the highest score. The persuasion enforcement strategy has an average score of 9.52 with the lowest score of 2 (country #8) and the highest score of 17 (country #2). Two countries have an enforcement score above the average on all three enforcement strategies (country #2 and #11) while only one country has a score below the average for all the three strategies. This indicates some variance in the enforcement in Europe.

The development of the capital markets varies widely as the market capitalisation of listed companies, relative to GDP, ranges from 30.3% in Portugal to 114.8% in the UK. A similar pattern is observed in the activity of the capital markets where traded stock in Ireland only amounts to 4.2% of GDP, while it amounts to 93.9% of GDP in the UK. Likewise, cultural characteristics differ significantly among countries.

Uncertainty avoidance is very high in Portugal (99), Belgium (94) and France (86) and therefore these countries are least receptive to new ideas and behaviour. In contrast, Denmark (23) and Sweden (29) are the most receptive to new ideas and behaviour. The need for achievement and assertiveness is most pronounced in Ireland (68), the UK (66) and Germany (66), while Sweden (5) and Norway (8) are the most consensus-oriented countries in Europe.

Strategic shareholders own, on average, 19.6% shares of the firms. However, there are wide variations in strategic ownership; it ranges from a low of 0.0% to a high of 87.8%. The average capitalised value of the firms is EUR 19.8 billion (median: 9.7 billion). Twenty-nine firms have a value of more than EUR 50.0 billion and eight of these firms have a value in excess of EUR 90 billion. On the other hand, 146 firms have a capitalised value of EUR 10.0 billion or less and 12 of these firms have a value of EUR 1.0 billion or less. The average total assets are EUR 106.8 billion (median: EUR 14.0 billion); 48 firms have total assets exceeding EUR 100.0 billion and eight of these firms have assets exceeding EUR 1.0 trillion; all these firms belong to the financial industry. Five firms have total assets of EUR 1.0 billion or less. The average revenue is EUR 19.3 billion (median: EUR 7.4 billion). Twenty-four firms have revenues exceeding EUR 50.0 billion and eight of these have revenues exceeding EUR 100.0 billion. In contrast, 19 firms have revenues of EUR 1.0 billion or less. The average number of employees is 56,895 (median: 24,274); 49 firms have more than 100,000 employees, while 12 firms employ fewer than 1,000 employees.

[Insert Table 5 – Correlations – around here]

The correlations of the variables are presented in Table 5. Spearman’s correlation coefficients are shown above the diagonal and the Pearson’s correlation coefficients are shown below the diagonal. The results indicate a significant and positive association between compliance and three of the measurements of materiality (ABSOLUTE, RELATIVE and QUARTILE 75–100%). The variables IMMATERIAL and QUARTILE 0–25% both show a significant negative association with compliance while QUARTILE 25–50% and QUARTILE 50–75% exhibit an insignificant association with compliance. The correlation among the four measurements of materiality is well below 1, suggesting that the four measurements capture materiality

differently. The exception to this is the association between QUARTILE 0–25% and IMMATERIAL and between QUARTILE 75–100% and RELATIVE, which exhibit a correlation of 0.83 and 0.84, respectively. Unsurprisingly, the combination of enforcement strategies (TOTAL) exhibits a positive and significant correlation with both the enforcement strategies of deterrence (DETERRENCE) and persuasion (PERSUASION). DETERRENCE and PERSUASION also exhibit a positive and significant correlation which suggests some degree of overlap between the two enforcement strategies.

Compliance exhibits a significantly negative correlation with the auditor as DELOITTE and a positive correlation with KPMG. S_MARKET, UNCERTAINTY AVOIDANCE and MASCULINITY all exhibit a significant and negative correlation with compliance while USLISTING shows a weak positive correlation with compliance. The remaining control variables exhibit an insignificant correlation with COMPLIANCE, though they are correlated with each other with varying degrees of significance. This may indicate problems of multicollinearity. Consequently, the variance inflation factor (VIF) is inspected and reported along with the empirical results. The VIFs in models 1 to 8 range from 1.25 to 3.64 across the three different enforcement strategies and are therefore well below the critical threshold of 10^{29} , which implies that multicollinearity is not a problem. Despite this, all reported standard errors are Huber-White-adjusted.

Empirical results

Panels A to C of Table 6 report the results of the four regression models (models 1 to 4) used to test hypotheses 1, 2 and 3, while panels A to C of Table 7 report the results of the four regression models (models 5 to 8) used to test hypothesis 4.

²⁹ Variables are considered to be at an acceptable level if their VIFs are below 10 (Wooldridge 2013, page 94) and also below the more conservative threshold of 5 (Montgomery et al. 2015, page 296).

Materiality

Model 1 in panel A of Table 6 shows that the absolute amount of goodwill (GOODWILL) is positive and significant ($t=5.13$; $p<.0001$). This indicates that the absolute amount of goodwill influences the disclosure decision and that a large amount of goodwill results in more disclosures. Similar results are found in panels B and C, indicating that the results are valid, irrespective the applied enforcement strategy. The effect is not only significant statistically but also economically as an increase in the absolute amount of goodwill of 1%, *ceteris paribus*, will increase the level of compliance by approximately 7.5% (based on total enforcement). This result confirms the finding of previous studies that the decision is influenced by the absolute amount of goodwill.

The relative size of goodwill (RELATIVE) is also positive and significant ($t=3.05$; $p=0.0025$) as indicated by Model 2 in panel A of Table 6. Similar results are exhibited in panels B and C. This implies that the number of times goodwill exceeds the planning materiality level influences preparers' disclosure decision. In other words, a firm in which goodwill is ten times the size of the planning materiality level has a higher level of compliance, *ceteris paribus*, than that in which goodwill is only five times the size of the planning materiality level. From Model 3 in Table 6, panel A, it is apparent that the firms apply a materiality assessment for their disclosure decisions because firms provide significantly fewer disclosures ($t=-3.68$; $p=0.0003$) if goodwill is immaterial (IMMATERIAL) than if goodwill is material. This result is significant both statistically and economically because firms with immaterial amounts of goodwill provide approximately 9.9 percentage points fewer disclosures than if goodwill is material. This result is in line with the expectation and suggests that firms apply a materiality assessment of mandatory disclosures when preparing the financial reports. The results are consistent across the applied enforcement strategies, as shown in Table 6, panels A to C.

If RELATIVE is partitioned into quartiles (Model 4, table 6, panel A), it becomes evident that the relative size matters. Firms located in the quartile of 0–25% of RELATIVE exhibit a significant and negative association ($t=-4.06$; $p<.0001$) with level of compliance. This implies that firms in this quartile have a level of compliance that is approximately 11.6 percentage points lower than those in the highest quartile of 75–100%). This result is expected as the majority of firms in this quartile have an amount of goodwill which is immaterial, as shown in Table 4. Firms in the quartiles of 25–50% ($t=-1.63$; $p=0.1051$) and 50–75% ($t=-1.52$; $p=0.1298$) exhibit an insignificantly lower level of compliance than firms in the highest quartile (75–100%) as these firms have a compliance which is approximately 3.7 and 3.5 percentage points, respectively, lower than that of firms in the highest quartile. This result suggests that firms apply a materiality assessment when preparing the financial reports and the assessment appears to be relatively attuned to the planning materiality threshold, that is, firms provide insignificantly different levels of disclosures if goodwill is material. The results in panels B and C of Table 6 are similar to those with one exception that QUARTILE 25–50% in model 4, panel B, is significantly different at the 10% level ($t=-1.80$; $p=0.0726$). These results suggest that a quantitative threshold measuring materiality provides a relatively good indicator for whether an item is considered material or immaterial. In summary, it appears that firms apply a materiality assessment when deciding which mandatory disclosures to disclose. Firms clearly provide fewer disclosures if goodwill is immaterial than when it is material.

[Insert Table 6 around here]

Enforcement

Models 1 to 4 in panel A of Table 6 show a positive and significant association between compliance and TOTAL ($t=2.25$; $t=0.0252$) in Model 3 and ($t=2.71$; $p=0.0072$) in Model 1, which indicates that a strict enforcement increases the level of mandatory disclosures if the applied enforcement strategy is a

combination of deterrence and persuasion strategies. However, the effect of enforcement becomes stronger if the enforcers apply a deterrence strategy, which is shown in panel B of Table 6. In these cases, enforcement is positively associated with compliance at the 1% level across all four models (Models 1–4) as the four models ranges from a significance of $t=3.08$ and $p=0.0023$ in Model 3 to $t=3.37$ and $p<.0001$ in Model 1. Interestingly, enforcement becomes insignificant if a persuasion enforcement strategy is applied (Table 6, panel C). Consequently, it appears that enforcement of disclosures must include elements of deterrence before it is effective in ensuring compliance with the mandatory disclosures.

Effects of enforcement on the concept of materiality

The question remains whether a strict enforcement mitigates the materiality assessment in the disclosure decision. It is evident from Models 5–8 in panels A–C of Table 7 that a strict enforcement does not significantly influence how firms apply their materiality assessments during their disclosure decisions. This is not surprising when it comes to persuasion strategy, considering this strategy has an insignificant effect on mandatory disclosures. However, it is more surprising that neither the deterrence strategy nor a mixed enforcement strategy significantly affects the level of compliance as the enforcement in both enforcement strategies is found to be highly significant. These results indicate that a strict enforcement, irrespective of the applied enforcement strategy, do not force firms to disclose immaterial information in the financial reports as suggested by several stakeholders (FRC 2011, EFRAG 2012, 2013, ESMA 2012, IAASB 2012, IASB 2013, 2015b).

[Insert Table 7 around here]

Control variables

Firms in different industries do not exhibit significantly different levels of compliance, as shown in panels A–C of Tables 6 and 7. However, the choice of auditor does appear to have a slight influence as the clients of KPMG in all models and across the different enforcement strategies exhibit a significantly higher level of compliance (at either a 10% or 5% level) compared to those of Deloitte. Clients of EY and PwC exhibit insignificantly different levels of compliance relative to Deloitte. The cultural characteristic of UNCERTAINTY AVOIDANCE exhibits the expected negative association with compliance and is highly significant for all models and enforcement strategies. MASCULINITY generally exhibits a significant and negative association to compliance at the 5% or 1% level except if a deterrence enforcement strategy is applied. Contrary to the expectations S_MARKET is negative and is significantly associated with compliance. This is puzzling as previous research has shown that an active capital market should create a demand for useful information (e.g. more disclosures). Consequently, the effects of capital markets have been estimated by using the individual components of S_MARKET and an alternative measure of market efficiency developed by the International Monetary Fund (IMF) (Svirydzenka, 2016). These estimations provide similar results.

Robustness tests

The enforcement indices used in the main test are constructed using private information, which implies that the enforcement scores are anonymous. The findings of this study are therefore difficult to reproduce and compare with the previous literature. This weakness is overcome by performing robustness tests using enforcement indices used in previous literature. Furthermore, such robustness tests help to validate the results of the main investigation and will thereby add credibility to the study.

Previous literature has used a series of different proxies; the most frequently used are legal origin (La Porta et al. 1998), elements of the general legislative and legal environment (Kaufmann et al. 2014), activity of enforcement bodies (Brown et al. 2013) and debt enforcement (Djankov et al. 2008). The selected enforcement indices have been used in several previous studies, including La Porta et al. (1997, 1998), La Porta et al. (2006), Hope (2003), Leuz et al. (2003), Daske et al. (2008), Florou and Pope (2012), Christensen et al. (2013), Glaum et al. (2013), Brown et al. (2014), Tsalavoutas et al. (2014) and Preiato et al. (2015). The classification of legal origin follows La Porta et al. (2008) and consists of the following four groups: English³⁰, French³¹, Scandinavian³² and German³³. The enforcement proxy used in Kaufmann et al. (2014) was taken from the section ‘Rule of Law’ from the Worldwide Governance Indicators project. The results of the robustness test are tabulated in Table 8 and they are directly comparable with the results of the main analysis as tabulated in Table 6, panels A to C.

[Insert Table 8 – Robustness tests of enforcement indices – around here]

The legal origin model produces very high VIFs (in excess of 20) for both English and Scandinavian legal origin due to MASCULINITY. However, the VIFs are reduced by eliminating MASCULINITY from the legal origin regressions. Models 1 to 4 from the main test have been re-run without MASCULINITY (not tabulated) without material changes to the results (changes in level of significance on the explanatory variables). It is therefore assumed that the legal origin model shown in panels A–C of Table 8 is comparable with Models 1 to 4 from the main test.

³⁰ English legal origin consists of the following countries: United Kingdom and Ireland.

³¹ French legal origin consists of the following countries: Belgium, France, Netherlands, Portugal, and Spain.

³² Scandinavian legal origin consists of the following countries: Denmark, Finland, Sweden, and Norway.

³³ German legal origin consists of the following country: Germany.

Table 8 shows that materiality measurements of the absolute (ABSOLUTE) and relative (RELATIVE) amount of goodwill are significantly and positively associated with the level of compliance at the 1% level for all of the applied enforcement indices. Items below the planning materiality level (IMMATERIAL) are significantly and negatively associated with compliance at the 1% level, as expected. For all enforcement indices, the lowest quartile (QUARTILE 0–25%) exhibits a negative and significantly lower level of compliance relatively to the benchmark (QUARTILE 75–100%). The other quartiles are all insignificantly different from the benchmark except for the Kaufmann et al. (2014) index, where the quartile 25–50% is significant at the 10% level. In sum, materiality exhibits a similar level of significance and behaviour as in the main test; these results are thus considered to be robust.

Enforcement is significant (at the 1% level) in all models when measured with legal origin or the Kaufmann et al. (2014) enforcement index. The results of legal origin show that firms located in countries with Scandinavian legal origin have a significantly higher level of disclosure than those located in countries with English legal origin. Firms located in a country with German or French legal origin exhibit insignificantly different levels of compliance relatively to those located in countries with an English legal origin. The Brown et al. (2014) and Djankov et al. (2008) enforcement indices are not associated with the level of compliance in any of the models examined.

The sample is not equally distributed across countries which entail the risk that one country drives the results. Models 1–4 have therefore been re-run with a sample where countries with more than 20 observations (France, Germany, Netherlands, Spain, or the UK) have been excluded, both individually and combined. The results of these tests (un-tabulated) do not alter the results for any of the explanatory variables. A similar test has been performed excluding the two industries Financials and Utilities as these industries are associated with additional regulatory burdens. These results (un-tabulated) are similar to those of the main test.

Summary and Conclusion

This study examined how materiality and enforcement influence compliance with mandatory disclosures in firms constituting the leading stock indices in Europe. Focusing on the mandatory disclosure requirements in IAS 36, the study identifies a considerable level of non-compliance as the level of compliance ranges from a low of 57.4% in Spain to a high of 82.5% in Denmark with an average compliance of 71.2%. The analysis finds that firms with material amounts of goodwill disclose significantly more mandatory disclosures than those with immaterial amounts of goodwill. The amount of disclosures provided when goodwill is material is not influenced by the absolute or relative size of goodwill as firms with high levels of goodwill provide insignificantly different levels of disclosures, relatively to firms where goodwill is only marginally material. Consequently, the results indicate that preparers consider both the relative and absolute aspects of the item being disclosed when making their disclosure decision.

Furthermore, the analysis finds that the strictness of enforcement influences the disclosure decision as firms located in countries with strict enforcement exhibits a significantly higher level of compliance than those located in countries with an average or weak enforcement. However, these results are only true if the applied enforcement strategy is based on a deterrence strategy or a combination of the deterrence and persuasion strategies. Thus, it appears that the ability to apply sanctions is a critical element for the enforcement of disclosures. The results are robust to changes in the measurement of enforcement as two of the four alternative enforcement measures exhibit a significant and positive association with the level of compliance. Finally, the analysis finds that strict enforcement does not influence how firms apply the concept of materiality as the moderating terms between enforcement and materiality are insignificant, implying that financial reporting enforcement does not influence materiality assessment.

This study contributes to the existing literature in several ways. First, it sheds light on how materiality is associated with mandatory disclosure requirements. Several stakeholders (FRC 2009, 2011, IASB 2013, ESMA 2012, IAASB 2012, FASB 2015) have claimed that a strict enforcement approach and a 'tick-the-box' attitude towards mandatory disclosures may result in clutter in the financial report. This study does not support this claim as the results clearly show that a strict enforcement does not suppress the materiality assessment. The second contribution is based on the variation in the level of compliance with mandatory disclosures across countries. This finding should be of particular interest to the enforcers and should encourage them to increase their cross-border cooperation and intensify the work to achieve a more homogeneous and uniform supervision of accounting regulations across the different countries. Furthermore, enforcers interested in increasing the compliance with mandatory disclosures may consider adopting a more the deterrence oriented enforcement strategy, as this strategy appears to have a higher impact on the level of compliance.

Third, the results of this study have direct implications for participants in capital markets because they confirm and quantify the uneven application of accounting rules. This reduces the transparency and comparability of financial reports which should make users more cautious and diligent when analysing and using financial reports from firms located in countries with a weak enforcement.

The findings are bound by several limitations. First, all data were hand-collected. Collection of data by hand requires the use of judgement to evaluate whether a disclosure is complied with, not complied with or not applicable. These judgements may cause bias in data collection and results. Due care has been taken to minimise the likelihood of errors, mistakes, and bias. Admittedly, additional work must be performed on the materiality proxies before a clear conclusion on how firms apply the concept of materiality in regard to mandatory disclosures can be reached. Future research on materiality should include the creation of a proxy for materiality that incorporates qualitative elements. These proxies must be designed specifically to

assess the materiality of mandatory disclosures. Additional research is needed to investigate how firms assess the qualitative aspects of the mandatory disclosure requirements and how these aspects are included in the disclosure decision. Case studies and other qualitative research techniques may be the most suitable ways of achieving these insights. Furthermore, future research must evaluate how compliance with mandatory disclosures evolves over longer periods of time. This would make it possible to examine whether firms evolve in their level of compliance or whether they are locked at a given level, thus making it possible to evaluate whether the factors influencing compliance change over time or remain constant.

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Table 1 – Overview of sample by country and industry

Panel A		Information not available due to language or other										Percentage of sample
Country	Index	Number of firms	Firm included in other index	due to language or other	Countries without enforcement data	Financial statement is not IFRS	Year-end outside of interval	Firm is without goodwill	Firms with missing data or non-big 4 auditor	Countries with fewer than 5 observations	Final sample	Percentage of sample
Austria	ATX	20	0	0	20	0	0	0	0	0	0	0,0%
Belgium	Bel20	20	2	0	0	0	0	0	0	0	18	6,3%
Czech republic	Px index	13	2	0	0	1	0	3	3	4	0	0,0%
Denmark	OMX C20	20	1	1	0	0	2	3	4	0	9	3,2%
Finland	OMX Hex25	24	2	0	0	0	0	0	3	0	19	6,7%
France	CAC40	40	4	0	0	0	1	0	5	0	30	10,5%
Germany	DAX30	30	0	0	0	0	3	0	0	0	27	9,5%
Ireland	ISEQ 20	20	0	1	0	0	3	6	0	0	10	3,5%
Italy	FTSE MIB	40	0	0	40	0	0	0	0	0	0	0,0%
Luxemburg	LuxX	9	0	0	9	0	0	0	0	0	0	0,0%
Netherlands	AEX	25	3	0	0	0	0	0	1	0	21	7,4%
Norway	OMXO 20GI	25	0	0	0	3	0	3	4	0	15	5,3%
Poland	WIG index	20	0	0	0	0	1	2	12	5	0	0,0%
Portugal	PSI-20	18	0	1	0	0	0	1	2	0	14	4,9%
Spain	IBEX 35	35	1	1	0	0	0	2	1	0	30	10,5%
Sweden	OMX S30	30	2	1	0	1	1	1	0	0	24	8,4%
Switzerland	SMI	20	0	0	20	0	0	0	0	0	0	0,0%
United Kingdom	FTSE100	100	4	2	0	0	17	9	0	0	68	23,9%
Total		509	21	7	89	5	28	30	35	9	285	100,0%

Panel B		Oil & Gas (ICB 0001)	Industrial (ICB 1000)	Basic Materials (ICB 2000)	Consumer Goods (ICB 3000)	Healthcare (ICB 4000)	Consumer Services (ICB 5000)	Telecommunications (ICB 6000)	Utilities (ICB 7000)	Financials (ICB 8000)	Technology (ICB 9000)	Final sample
Belgium	Bel20	0	2	2	1	1	4	0	1	6	1	18
Denmark	OMX C20	1	2	0	2	3	0	0	0	1	0	9
Finland	OMX Hex25	1	7	3	2	1	1	1	1	1	1	19
France	CAC40	2	5	0	6	2	5	1	3	4	2	30
Germany	DAX30	0	2	5	7	3	1	1	2	5	1	27
Ireland	ISEQ 20	0	3	0	4	0	3	0	0	0	0	10
Netherlands	AEX	3	4	3	2	0	2	2	0	3	2	21
Norway	OMXO 20GI	7	0	2	1	0	1	1	0	3	0	15
Portugal	PSI-20	1	2	2	0	0	4	0	3	2	0	14
Spain	IBEX 35	4	7	0	1	1	4	0	3	9	1	30
Sweden	OMX S30	0	8	2	3	1	1	2	0	6	1	24
United Kingdom	FTSE100	2	13	5	7	4	12	2	4	18	1	68
Total		21	55	24	36	16	38	10	17	58	10	285
Percentage of sample		7,4%	19,3%	8,4%	12,6%	5,6%	13,3%	3,5%	6,0%	20,4%	3,5%	100,0%

Table 2 – Overview of independent variables – description and source

Variable	Description	Source
Panel A – Explanatory variables		
Materiality	Four measurements of materiality are applied: ABSOLUTE, RELATIVE, IMMATERIAL and QUARTILED MATERIALITY. Each of these is described below.	
<i>(ABSOLUTE)</i>	Measurement of materiality when it is based on the absolute amount of goodwill and is calculated as the log of goodwill at year-end 2014.	Calculated based on hand-collected figures from the 2014 financial statement
<i>(RELATIVE)</i>	<p>Measurement of materiality when the goodwill is viewed relatively to the size and activities of the firms.</p> <p>RELATIVE is calculated as follows: $\frac{\text{Amount of Goodwill}}{\text{Planning Materiality}}$, where</p> <p>Goodwill is the amount of goodwill reported by the firm at year-end 2014.</p> <p>Planning materiality is the average of:</p> <ul style="list-style-type: none"> • 0.5% and 1% of Total Assets, • 5% and 10% of Net Income, • 0.5% and 1% of Total Revenue and • 1% and 5% of the Equity <p>Ratios above 1 indicate that goodwill is material for the firm.</p>	Calculated based on hand-collected figures from the 2014 financial statement
<i>(IMMATERIAL)</i>	Indicator variable measuring if RELATIVE is above or below one. The variable is coded 1 if the carrying amount of goodwill is less than the level	Calculated based on hand-collected figures from the 2014 financial statement

Variable	Description	Source
<p><i>(QUARTILED MATERIALITY)</i></p>	<p>of the planning materiality and 0 if goodwill exceeds the planning materiality level.</p>	
	<p>Four indicator variables showing to which quartile the firm belongs when classified based on RELATIVE.</p> <p>Each indicator is coded as either 1 (included in quartile) or 0 (excluded from quartile).</p> <p>The quartiles are classified in the following ranges: 0–25%; 25–50%; 50–75% and 75–100%.</p>	<p>Calculated based on hand-collected figures from the 2014 financial statement</p>
<p>Enforcement <i>(ENFORCEMENT)</i></p>	<p>Three indices of the public enforcement of financial reporting. The indices measure the actual applied enforcement on preparers of financial report. The indices contain measurements of both the formal and the actual performed enforcement.</p> <p>Each of the three enforcement indices measures a different enforcement strategy. These are as follows:</p> <p>Total enforcement: measures enforcement when the enforcers apply a combined strategy of the deterrence and the persuasion strategies.</p> <p>Deterrence: measures enforcement when the enforcers apply a deterrence enforcement strategy.</p> <p>Persuasion: measures enforcement when the</p>	<p>Johansen et al. 2018</p>

Variable	Description	Source
	enforcers apply a persuasion enforcement strategy	
Panel B – Control variables		
Auditors <i>(DELOITTE, EY, PWC and KPMG)</i>	<p>Auditors are shown by four indicator variables, one for each of the Big 4 auditing firms.</p> <p>Firms audited by more than one auditor are coded as being audited by the auditing firms that charge the highest auditing fee. Deloitte is used as the benchmark.</p>	Hand-collected from the 2014 financial statement
Capital Markets <i>(S_Market)</i>	<p>Index measuring the development of the national stock market.</p> <p>The measurement is based on a ranked score of the following three factors:</p> <ul style="list-style-type: none"> • total capitalisation to GDP, • number of listed countries to total population in million and • ratio of market turnover to GDP 	<p>All measures have been obtained from the World Bank database</p> <p>The measures are from 2012.</p>
Industry of the firm <i>(OIL & GAS, INDUSTRIAL, BASIC MATERIALS, CONSUMER GOODS, HEALTHCARE, CONSUMER SERVICES, TELECOMMUNICATIONS, UTILITIES, TECHNOLOGY,</i>	<p>Industry effects are controlled for by ten industry indicators. Industries are coded by the four digit ICB industry code.</p> <p>Each industry has its own indicator variable and is coded as 0 (firm does not work within the industry) or 1 (firm works within the industry).</p>	Thomson One Banker

Variable	Description	Source
<i>AND FINANCIALS)</i>		
Cultural characteristic <i>(MASCULINITY)</i>	Measurement of the preference for achievement, assertiveness, and material rewards for success in a society.	Hofstede et al. (2010)
<i>(UNCERTAINTY AVOIDANCE)</i>	Measurement of how rigid a society is in accepting new ideas and behaviour and how the society deals with the fact that the future is unknown. In societies with a high uncertainty avoidance culture, principles count more than practices.	Hofstede et al. (2010)
Size of the firm <i>(SIZE)</i>	The control variable measures the size of the firm. The measurement used is based on an averaged ranked score of the following items: <ul style="list-style-type: none"> • total assets at the end of 2014, • total revenue at the end of 2014, • number of employees (average FTE) and • market capitalisation at the end of 2014. 	Hand-collected from the 2014 financial statement Market capitalisation has been retrieved from DataStream
Dual listing in the US <i>(USLISTING)</i>	Indicator variable if the firm has a dual listing in a US stock exchange (US-listed =1; not US-listed=0)	Hand-collected from the 2014 financial statement
Profit <i>(PROFIT)</i>	Indicator variable if the firm was profitable in 2014 (profits=1; losses=0).	Hand-collected from the 2014 financial statements
Corporate governance <i>(AUDIT_COM)</i>	Proxy for the quality of work performed by the audit committee.	Hand-collected from the 2014 financial statement or

Variable	Description	Source
	The proxy is based on the number of meetings held by the audit committee in 2014 and is calculated as the log of the number of meeting in 2014.	company website
Ownership structure <i>(CLOSELY-HELD) and</i> <i>(CLOSELY-HELD²)</i>	Percentage of equity shares closely held by strategic investors (foundations, institutional investors, and families). The values are expressed in % and squared % to measure the inversed U-shaped relationship to disclosure.	Thomson One Banker

Table 3 – Descriptive statistics for dependent variables

	Level of compliance					
	n	Mean	Std Dev	Median	Minimum	Maximum
Dependent variable						
COMPLIANCE	285	72,05	15,55	75,00	15,00	100,00
<i>-By country</i>						
Belgium	18	76,16	14,70	80,00	38,10	100,00
Denmark	9	82,47	12,70	83,33	53,85	96,15
Finland	19	75,33	7,83	76,19	65,00	90,91
France	30	73,62	14,75	80,00	40,91	95,65
Germany	27	76,51	14,67	80,65	20,00	93,33
Ireland	10	78,85	8,70	77,33	63,64	95,65
Netherlands	21	73,33	13,49	72,00	45,00	95,45
Norway	15	75,76	20,62	81,82	15,00	95,45
Portugal	14	65,98	9,36	65,91	50,00	90,91
Spain	30	57,37	18,45	60,79	25,71	88,57
Sweden	24	78,95	7,47	79,66	62,50	95,24
United Kingdom	68	69,33	15,82	72,73	18,18	95,24
<i>-By Auditor</i>						
- Deloitte	58	66,28	19,73	65,83	15,00	100,00
- E&Y	58	71,60	17,84	78,71	18,18	95,65
- KPMG	79	75,79	11,77	76,92	20,00	96,15
- PwC	90	72,78	12,74	75,00	25,71	95,24
<i>-By Industry</i>						
Oil & Gas (ICB 0001)	21	71,26	17,26	76,19	25,71	95,45
Industrial (ICB 1000)	55	73,13	14,42	75,00	27,91	95,65
Basic Materials (ICB 2000)	24	72,20	15,67	76,19	30,77	95,24
Consumer Goods (ICB 3000)	36	76,46	10,51	76,73	52,38	96,15
Healthcare (ICB 4000)	16	74,42	14,88	79,47	31,82	95,24
Consumer Services (ICB 5000)	38	69,75	14,61	74,34	25,71	86,36
Telecommunications (ICB 6000)	10	81,00	10,32	84,41	62,50	95,24
Utilities (ICB 7000)	17	71,50	14,38	71,43	37,14	93,33
Financials (ICB 8000)	58	68,54	18,43	72,73	15,00	100,00
Technology (ICB 9000)	10	67,93	22,06	75,30	20,00	95,65
<i>-By IMMATERIALITY</i>						
IMMATERIAL (goodwill is immaterial)	53	63,10	20,54	68,18	15,00	95,45
IMMATERIAL (goodwill is material)	232	74,10	13,41	76,19	20,00	100,00
<i>-By QUARTILED MATERIALITY</i>						
0-25% quartile	71	64,92	19,53	69,57	15,00	95,45
25-50 quartile	72	73,02	13,43	76,56	30,77	100,00
50-75% quartile	71	73,32	12,47	75,00	31,82	95,65
75-100% quartile	71	76,94	13,52	80,00	20,00	96,15

Table 4 – Descriptive statistics for independent variables

Explanatory variables

Country ID
(Name of country
is anonymous and
numbers are
random)

	Total Enforcement	Deterrence Enforcement	Persuasion Enforcement			
1	68	16	8			
2	89	14	17			
3	68	13	5			
4	66	4	7			
5	67	8	15			
6	50	5	12			
7	42	11	3			
8	35	2	2			
9	61	3	7			
10	67	12	9			
11	68	17	16			
12	55	8	11			
Mean	60,3754	9,1509	9,5228			
Median	66,0000	8,0000	9,0000			
Std Dev	11,2596	4,5224	4,2273			
<hr/>						
	n	Mean	Std Dev	Median	Minimum	Maximum
<i>Non-dichotomous</i>						
ABSOLUTE (log of goodwill)	285	5,9647	0,8492	6,0364	3,0941	7,7648
ABSOLUTE in '000 EUR (Goodwill)		3.482.817	6.297.647	1.087.421	1.242	58.189.320
RELATIVE	285	14,7499	15,9701	10,0711	0,0303	86,2977
RELATIVE in '000 EUR		574.073	1.298.309	136.003	3.487	9.844.409
<i>IMMATERIAL</i>						
Goodwill is material (0)	232	18,0059	16,0090	13,4598	1,0426	86,2977
Goodwill is immaterial (1)	53	0,4973	0,2958	0,5422	0,0303	0,9112
IMMATERIAL (1) in '0000 EUR		550.506	880.471	164.113	1.242	4.331.000
<i>QUARTILED MATERIALITY</i>						
0-25% quartile	71	0,7390	0,5032	0,7099	0,0303	1,8279
25-50 quartile	72	4,8125	2,2065	4,2202	1,8334	10,0711
50-75% quartile	71	15,4545	3,6258	14,7431	10,0829	22,6817
75-100% quartile	71	38,1338	12,6734	35,8008	22,8092	86,2977
<i>QUARTILED MATERIALITY in '000 EUR</i>						
0-25% quartile in '000 EUR		1.083.938	2.570.474	214.394	1.242	15.764.028
25-50 quartile in '000 EUR		2.418.795	5.042.245	589.820	7.066	27.548.000
50-75% quartile in '000 EUR		3.633.793	5.092.968	1.788.000	135.867	30.987.357
75-100% quartile in '000 EUR		6.809.729	9.182.796	3.181.000	300.892	58.189.320

(Continued)

(table 4 continued)

Control variables

Country	S MARKET			Culture		
	Market capitalisation of listed domestic companies (% of GDP)	Stocks traded, total value (% of GDP)	Listed companies to population in million	MASCULINITY	UNCERTAINTY AVOIDANCE	
Belgium	60,17	20,28	13,21	54	94	
Denmark	69,77	36,41	31,12	16	23	
Finland	61,82	51,62	21,98	26	59	
France	67,43	40,07	8,56	43	86	
Germany	41,99	35,31	8,27	66	65	
Ireland	48,51	4,17	9,16	68	35	
Netherlands	78,51	50,36	8,06	14	53	
Norway	47,63	23,47	36,66	8	50	
Portugal	30,28	12,22	4,66	31	99	
Spain	74,26	64,51	67,73	42	86	
Sweden	103,06	75,23	34,88	5	29	
United Kingdom	114,79	93,91	29,50	66	35	

	n	Mean	Std Dev	Median	Minimum	Maximum
<i>Non-dichotomous</i>						
SIZE	285	241,6132	105,8107	243,2500	11,0000	426,5000
- Total revenue in '000 EUR		19.335.429	36.335.475	7.361.286	79.073	317.446.069
- Total assets in '000 EUR		106.801.620	294.185.325	13.964.739	294.120	2.166.239.249
- Market capitalization in '000 EUR		19.784.247	26.068.094	9.700.289	132.384	174.120.739
- Employees in average FTE		56.895	88.337	24.274	40	623.000
AUDIT_COM	285	0,7430	0,1727	0,6990	0,3010	1,3802
AUDIT_COM in # of meetings		6,0175	2,7661	5,0000	2,0000	24,0000
CLOSELY-HELD in %	285	19,5802	21,7850	9,9400	0,0000	87,8000
CLOSELY-HELD (squared)		856,3063	1.410,6393	98,8036	0,0000	7.708,8400
<i>Dichotomous</i>		(0)	(1)			
AUDITORS	285	see table C				
INDUSTRY	285	see table C				
US LISTING (1 if cross-liste	285	196	89			
PROFIT	285	27	258			

Table 6 – Compliance with mandatory disclosures

Panel A: Total Enforcement

All models are mean-centred	Expected direction	Model 1 Absolute materiality (N=285)		Model 2 Relative materiality (N=285)		Model 3 Immaterial (N=285)		Model 4 (Materiality - quartile) (N=285)	
		β	t	β	t	β	t	β	t
Independent variables									
Intercept		69,9437	13,85 ***	70,7963	14,15 ***	72,9333	14,34 ***	76,9493	14,27 ***
Explanatory variables									
ABSOLUTE	+	7,4961	5,13 ***						
RELATIVE	+			0,1880	3,05 ***				
IMMATERIAL	-					-9,9189	-3,68 ***		
ENFORCEMENT	+	0,2009	2,71 ***	0,1916	2,59 ***	0,1680	2,25 **	0,1859	2,49 **
Materiality indicators \S									
0-25% quartile of materiality	-							-11,5665	-4,06 ***
25-50% quartile of materiality	?							-3,7180	-1,63
50-75% quartile of materiality	?							-3,4906	-1,52
Control Variables									
CLOSELY-HELD	+/-	-0,0321	-0,25	-0,0445	-0,35	-0,0022	-0,02	-0,0020	-0,01
CLOSELY-HELD ²	+/-	0,0005	0,27	0,0008	0,44	0,0001	0,07	0,0002	0,09
SIZE	+	-0,0251	-2,25 **	0,0165	1,82 *	0,0158	1,80 *	0,0168	1,87 *
AUDIT_COM	+	7,2580	1,39	5,7333	1,11	7,4538	1,40	6,7173	1,31
USLISTING	+	0,5228	0,31	0,8080	0,46	1,0933	0,63	0,8668	0,51
PROFIT	-	-2,7669	-0,77	-3,3788	-0,94	-3,1076	-0,89	-3,0810	-0,87
MASCULINITY	+	-0,0861	-2,30 **	-0,0776	-2,02 **	-0,0827	-2,19 **	-0,0778	-2,03 **
UNCERTAINTY AVOIDANCE	-	-0,1992	-4,75 ***	-0,1943	-4,53 ***	-0,1848	-4,34 ***	-0,1878	-4,43 ***
S_MARKET	+	-1,1057	-4,20 ***	-1,1422	-4,13 ***	-1,1583	-4,36 ***	-1,1304	-4,25 ***
Auditor indicators $\&$									
E&Y	?	3,4526	1,11	3,9756	1,23	3,3801	1,07	3,3671	1,07
KPMG	?	5,3752	1,91 *	5,6829	2,02 **	5,3841	1,98 **	5,4149	1,91 *
PwC	?	4,1859	1,52	3,7868	1,34	3,5753	1,31	3,9481	1,42
Industry indicator $\&$									
OIL&GAS	?	2,8286	0,74	1,4567	0,36	0,7695	0,19	0,3907	0,10
INDUSTRIAL	?	1,5144	0,55	0,7710	0,24	0,9731	0,33	-1,1561	-0,36
BASIC MATERIALS	?	-0,0066	-0,00	0,7591	0,19	-2,2347	-0,56	-2,4092	-0,58
CONSUMER GOODS	?	2,6617	0,93	1,9408	0,61	1,2967	0,44	-0,6244	-0,20
HEALTHCARE	?	-1,6337	-0,38	-1,7821	-0,37	0,0873	0,02	-3,2526	-0,68
CONSUMER SERVICES	?	0,9804	0,32	-0,9292	-0,27	-1,1465	-0,36	-2,3424	-0,70
TELECOMMUNICATIONS	?	5,3245	1,33	5,8825	1,50	5,3662	1,31	3,4354	0,83
UTILITIES	?	1,2991	0,37	1,8618	0,51	1,2338	0,36	0,0626	0,02
TECHNOLOGY	?	-5,8066	-0,74	-5,0229	-0,64	-5,9186	-0,76	-7,8129	-0,95
Adjusted R ² and F – value		0,1886	3,87 ***	0,1369	2,96 ***	0,1625	3,40 ***	0,1561	3,10 ***
Maximum VIF $@$			2,29		1,46		1,26		2,32

*, **, *** indicate statistical significance at the 10 percent, 5 percent and 1 percent levels, respectively. \S The benchmark used for materiality is the quartile 75-100%. $\&$ The benchmark for auditors is Deloitte. $\&$ The benchmark used for industries is Financials. $@$ Maximum VIF shows the highest VIF-value for any of the explanatory variables, i.e. proxies for enforcement and materiality.

Panel B: Deterrence Enforcement

	Expected direction	Model 1 Absolute materiality (N=285)		Model 2 Relative materiality (N=285)		Model 3 Immaterial (N=285)		Model 4 (Materiality - quartile) (N=285)	
		β	t	β	t	β	t	β	t
<i>All models are mean-centred</i>									
Independent variables									
Intercept		69,0209	13,89 ***	69,9326	14,28 ***	72,1518	14,54 ***	76,2816	14,36 ***
<i>Explanatory variables</i>									
ABSOLUTE	+	7,6160	5,21 ***						
RELATIVE	+			0,1911	3,09 ***				
IMMATERIAL	-					-9,9819	-3,71 ***		
ENFORCEMENT	+	0,7373	3,57 ***	0,7022	3,38 ***	0,6559	3,08 ***	0,6876	3,35 ***
<i>Materiality indicators\S</i>									
0-25% quartile of materiality	-							-11,6822	-4,10 ***
25-50% quartile of materiality	?							-4,0814	-1,80 *
50-75% quartile of materiality	?							-3,1991	-1,40
<i>Control Variables</i>									
CLOSELY-HELD	+/-	-0,0882	-0,71	-0,0982	-0,78	-0,0516	-0,41	-0,0596	-0,47
CLOSELY-HELD ²	+/-	0,0011	0,59	0,0013	0,75	0,0006	0,36	0,0008	0,43
SIZE	+	-0,0215	-1,97 **	0,0205	2,29 **	0,0196	2,26 **	0,0206	2,33 **
AUDIT_COM	+	8,5970	1,67 *	6,9853	1,38	8,6192	1,64	7,9041	1,56
USLISTING	+	0,2479	0,15	0,5494	0,32	0,8744	0,51	0,6217	0,37
PROFIT	-	-2,5854	-0,73	-3,2140	-0,91	-3,0079	-0,87	-2,9153	-0,83
MASCULINITY	+	-0,0521	-1,30	-0,0451	-1,10	-0,0523	-1,28	-0,0453	-1,10
UNCERTAINTY AVOIDANCE	-	-0,1735	-4,21 ***	-0,1697	-4,01 ***	-0,1635	-3,92 ***	-0,0165	-3,95 ***
S_MARKET	+	-1,4117	-4,84 ***	-1,4341	-4,65 ***	-1,4358	-4,85 ***	-1,4155	-4,79 ***
<i>Auditor indicators$\&$</i>									
E&Y	?	4,0935	1,34	4,5940	1,44	3,9716	1,27	3,9452	1,27
KPMG	?	5,2755	1,94 *	5,5919	2,06 **	5,3306	2,03 **	5,2925	1,93 *
PwC	?	4,5441	1,69 *	4,1218	1,50	3,9040	1,47	4,2226	1,55
<i>Industry indicator$\&$</i>									
OIL&GAS	?	3,0962	0,82	1,6893	0,43	1,0467	0,26	0,5705	0,14
INDUSTRIAL	?	2,2974	0,83	1,5010	0,47	1,6731	0,57	-0,5950	-0,19
BASIC MATERIALS	?	0,1178	0,03	0,8873	0,23	-2,1105	-0,56	-2,3362	-0,58
CONSUMER GOODS	?	3,7537	1,29	2,9673	0,93	2,2388	0,75	0,2923	0,09
HEALTHCARE	?	-0,1713	-0,04	-0,3969	-0,09	1,3413	0,32	-2,0480	-0,44
CONSUMER SERVICES	?	1,7771	0,60	-0,2032	-0,06	-0,4312	-0,14	-1,7369	-0,53
TELECOMMUNICATIONS	?	6,0162	1,50	6,5444	1,69 *	6,0451	1,47	3,8903	0,93
UTILITIES	?	2,4507	0,70	2,9656	0,81	2,2580	0,66	0,8616	0,24
TECHNOLOGY	?	-5,0112	-0,65	-4,2580	-0,55	-5,1682	-0,67	-7,3488	-0,91
<i>Adjusted R² and F – value</i>									
		0,2053	4,19 ***	0,1519	3,21 ***	0,1775	3,66 ***	0,1708	3,34 ***
<i>Maximum VIF@</i>									
			2,29		1,46		1,41		2,32

*, **, *** Indicate statistical significance at the 10 percent, 5 percent and 1 percent levels, respectively. \S The benchmark used for materiality is the quartile 75-100%. $\&$ The benchmark for auditors is Deloitte. $\&$ The benchmark used for industries is Financials. @Maximum VIF shows the highest VIF-value for any of the explanatory variables, i.e. proxies for enforcement and materiality.

Panel C: Persuasion Enforcement

All models are mean-centred	Expected direction	Model 1 Absolute materiality (N=285)		Model 2 Relative materiality (N=285)		Model 3 Immaterial (N=285)		Model 4 (Materiality - quartile) (N=285)	
		β	t	β	t	β	t	β	t
Independent variables									
Intercept		69,3853	13,51 ***	70,2334	13,75 ***	72,5638	14,06 ***	76,4313	13,90 ***
Explanatory variables									
ABSOLUTE	+	7,4354	5,05 ***						
RELATIVE	+			0,1842	3,03 ***				
IMMATERIAL	-					-10,1259	-3,72 ***		
ENFORCEMENT	+	0,2522	1,06	0,1867	0,78	0,1531	0,65	0,1520	0,64
Materiality indicators \S									
0-25% quartile of materiality	-							-11,5193	-4,02 ***
25-50% quartile of materiality	?							-3,7176	-1,63
50-75% quartile of materiality	?							-3,5882	-1,56
Control Variables									
CLOSELY-HELD	+/-	-0,0361	-0,28	-0,0485	-0,37	-0,0053	-0,04	-0,0057	-0,04
CLOSELY-HELD ²	+/-	0,0005	0,27	0,0008	0,43	0,0001	0,07	0,0002	0,08
SIZE	+	-0,0259	-2,26 **	0,0157	1,70 *	0,0152	1,69 *	0,0162	1,77 *
AUDIT_COM	+	7,0475	1,32	5,6515	1,07	7,4326	1,37	6,6880	1,28
USLISTING	+	0,3811	0,22	0,6584	0,37	0,9349	0,53	0,6926	0,40
PROFIT	-	-2,1404	-0,60	-2,7241	-0,76	-2,4952	-0,71	-2,4070	-0,68
MASCULINITY	+	-0,0995	-2,87 ***	-0,0878	-0,25 **	-0,0914	-2,63 ***	-0,0865	-2,43 **
UNCERTAINTY AVOIDANCE	-	-0,1490	-3,10 ***	-0,1507	-3,03 ***	-0,1472	-3,03 ***	-0,1478	-3,03 ***
S_MARKET	+	-1,0054	-3,71 ***	-1,0510	-3,70 ***	-1,0785	-3,97 ***	-1,0440	-3,82 ***
Auditor indicators \dagger									
E&Y	?	3,4808	1,08	3,9188	1,17	3,3082	1,02	3,2812	1,01
KPMG	?	5,0704	1,75 *	5,3454	1,84 *	5,0581	1,80 *	5,0651	1,73 *
PwC	?	4,1052	1,44	3,6567	1,25	3,4520	1,22	3,8048	1,32
Industry indicator $\&$									
OIL&GAS	?	2,2531	0,57	0,8213	0,20	0,1555	0,04	-0,2721	-0,07
INDUSTRIAL	?	1,7952	0,65	1,1069	0,34	1,1253	0,38	-0,8462	-0,26
BASIC MATERIALS	?	-0,0581	-0,01	0,6985	0,17	-2,4120	-0,60	-2,4586	-0,58
CONSUMER GOODS	?	3,1466	1,09	2,4731	0,77	1,6605	0,56	-0,0934	-0,03
HEALTHCARE	?	-0,3072	-0,07	-0,3361	-0,07	1,2049	0,28	-1,8525	-0,39
CONSUMER SERVICES	?	0,8477	0,27	-1,0223	-0,29	-1,3480	-0,42	-2,4580	-0,73
TELECOMMUNICATIONS	?	5,1458	1,28	5,7026	1,42	5,0281	1,22	3,2221	0,77
UTILITIES	?	1,5957	0,57	2,1620	0,58	1,4261	0,40	0,4035	0,11
TECHNOLOGY	?	-5,7259	-0,72	-4,9463	-0,62	-6,0213	-0,76	-7,7481	-0,93
Adjusted R ² and F – value		0,1730	3,58 ***	0,1215	2,71 ***	0,1505	3,19 ***	0,1411	2,87 ***
Maximum VIF $@$			2,29		1,57		1,57		2,32

*, **, *** Indicate statistical significance at the 10 percent, 5 percent and 1 percent levels, respectively. \S The benchmark used for materiality is the quartile 75-100%. \dagger The benchmark for auditors is Deloitte. $\&$ The benchmark used for industries is Financials. $@$ Maximum VIF shows the highest VIF-value for any of the explanatory variables, i.e. proxies for enforcement and materiality.

Table 7 – Moderating effects of enforcement on materiality

<i>Panel A: Total Enforcement</i>		Model 5		Model 6		Model 7		Model 8	
		Enforcement on absolute materiality (N=285)		Enforcement on relative materiality (N=285)		Enforcement on immateriality (N=285)		Enforcement on quantiled materiality (N=285)	
Independent variables	Expected direction	β	t	β	t	β	t	β	t
Intercept		69,9447	13,84 ***	70,4595	13,70 ***	72,9349	14,39 ***	76,9411	14,12 ***
<i>Explanatory variables</i>									
ABSOLUTE	+	7,4566	5,07 ***						
RELATIVE	+			0,1846	2,98 ***				
IMMATERIAL	-					-9,9196	-3,66 ***		
ENFORCEMENT	+	0,2020	2,78 ***	0,1982	2,53 **	0,1676	2,41 **	0,1563	1,76 *
<i>Materiality indicators§</i>									
0-25% quartile of materiality	-							-11,6056	-4,01 ***
25-50% quartile of materiality	?							-3,7362	-1,63
50-75% quartile of materiality	?							-3,5104	-1,53
<i>Control Variables</i>									
CLOSELY_HELD	+/-	-0,0353	-0,27	-0,0313	-0,24	-0,0023	-0,02	0,0005	0,00
CLOSELY_HELD ²	+/-	0,0005	0,29	0,0006	0,32	0,0001	0,07	0,0001	0,06
SIZE	+	-0,0251	-2,26 **	0,0170	1,88 *	0,0159	1,78 *	0,0170	1,86 *
AUDIT_COM	+	7,2517	1,38	5,9500	1,15	7,4513	1,40	6,7505	1,29
USLISTING	+	0,4695	0,28	0,8796	0,50	1,0929	0,63	0,8835	0,51
PROFIT	-	-2,7803	-0,78	-3,1635	-0,88	-3,1054	-0,89	-3,0445	-0,85
MASCULINITY	+	-0,0871	-2,28 **	-0,0776	-2,03 **	-0,0828	-2,25 **	-0,0782	-2,07 **
UNCERTAINTY AVOIDANCE	-	-0,1983	-4,73 ***	-0,1991	-4,57 ***	-0,1849	-4,37 ***	-0,1901	-4,34 ***
S_MARKET	+	-1,0935	-4,23 ***	-1,1599	-4,26 ***	-1,1588	-4,47 ***	-1,1399	-4,33 ***
<i>Auditor indicators‡</i>									
E&Y	?	3,3952	1,09	4,2032	1,29	3,3828	1,06	3,4640	1,09
KPMG	?	5,3691	1,90 *	5,6906	2,02 **	5,3824	1,99 **	5,3830	1,92 *
PwC	?	4,1659	1,50	3,8391	1,35	3,5773	1,28	3,9702	1,42
<i>Industry indicator&</i>									
OIL&GAS	?	2,8047	0,73	1,6186	0,40	0,7682	0,19	0,4429	0,11
INDUSTRIAL	?	1,5814	0,58	0,8083	0,25	0,9677	0,34	-1,2228	-0,39
BASIC MATERIALS	?	0,0578	0,01	0,9258	0,23	-2,2401	-0,57	-2,3969	-0,59
CONSUMER GOODS	?	2,7366	0,96	1,9128	0,60	1,2905	0,45	-0,7388	-0,24
HEALTHCARE	?	-1,5273	-0,36	-1,3657	-0,27	0,0848	0,02	-3,1535	-0,65
CONSUMER SERVICES	?	1,0021	0,33	-0,9013	-0,26	-1,1510	-0,37	-2,3800	-0,72
TELECOMMUNICATIONS	?	5,4423	1,37	5,6105	1,48	5,3587	1,33	3,3720	0,83
UTILITIES	?	1,2858	0,37	1,9816	0,54	1,2303	0,36	0,0479	0,01
TECHNOLOGY	?	-5,8001	-0,74	-4,7769	-0,61	-5,9226	-0,76	-7,7194	-0,94
<i>Moderation effects</i>									
ENFORCEMENT*GOODWILL	?	0,0345	0,32						
ENFORCEMENT*MATERIALITY	?			-0,0033	-0,78				
ENFORCEMENT*IMMATERIAL	?					0,0029	0,01		
<i>Materiality indicators§</i>									
ENFORCEMENT*0-25% quartile of materiality	?							0,0614	0,25
ENFORCEMENT*25-50% quartile of materiality	?							0,0346	0,17
ENFORCEMENT*50-75% quartile of materiality	?							0,0381	0,25
<i>Adjusted R² and F – value</i>									
		0,1858	3,70 ***	0,1350	2,85 ***	0,1593	3,24 ***	0,1465	2,74 ***
<i>Maximum VIF@</i>									
			2,31		1,47		1,43		3,64

*, **, *** Indicate statistical significance at the 10 percent, 5 percent and 1 percent levels, respectively. §The benchmark used for materiality is the quartile 75-100%. ‡The benchmark for auditors is Deloitte. &The benchmark used for industries is Financials. @Maximum VIF shows the highest VIF-value for any of the explanatory variables, i.e. proxies for enforcement and materiality.

		Model 5		Model 6		Model 7		Model 8		
		Enforcement on absolute materiality (N=285)		Enforcement on relative materiality (N=285)		Enforcement on immateriality (N=285)		Enforcement on quantiled materiality (N=285)		
All models are mean-centred		Expected direction	β	t	β	t	β	t	β	t
Independent variables			69,5609	13,67 ***	70,5575	14,10 ***	72,6291	14,42 ***	76,3370	14,67 ***
Intercept										
Explanatory variables										
ABSOLUTE		+	7,6883	5,33 ***						
RELATIVE		+			0,1921	3,09 ***				
IMMATERIAL		-					-9,9252	-3,72 ***		
ENFORCEMENT		+	0,3136	3,34 ***	0,2895	3,02 ***	0,3154	3,26 ***	0,2011	1,65 *
Materiality indicators \S										
0-25% quartile of materiality		-							-11,4977	-4,06 ***
25-50% quartile of materiality		?							-4,0888	-1,81 *
50-75% quartile of materiality		?							-3,2501	-1,41
Control Variables										
CLOSELY_HELD		+/-	-0,0612	-0,49	-0,0735	-0,57	-0,0141	-0,11	-0,0207	-0,16
CLOSELY_HELD ²		+/-	0,0008	0,44	0,0011	0,63	0,0003	0,17	0,0004	0,24
SIZE		+	-0,0251	-2,26 **	0,0167	1,86 *	0,0152	1,73 *	0,0178	1,98 **
AUDIT_COM		+	7,2692	1,39	6,4225	1,25	7,7539	1,46	7,0731	1,37
USLISTING		+	0,3084	0,18	0,5735	0,33	0,9449	0,55	0,6859	0,40
PROFIT		+	-2,5435	-0,70	-3,2876	-0,92	-2,8154	-0,81	-2,8118	-0,80
MASCULINITY		-	-0,0624	-1,56	-0,0543	-1,31	-0,0591	-1,45	-0,0472	-1,11
UNCERTAINTY AVOIDANCE		-	-0,1681	-4,01 ***	-0,1704	-4,00 ***	-0,1631	-3,91 ***	-0,1691	-4,08 ***
S_MARKET		+	-1,2139	-4,36 ***	-1,2687	-4,37 ***	-1,2370	-4,47 ***	-1,3116	-4,53 ***
Auditor indicators \S										
E&Y		?	3,9694	1,28	4,3148	1,34	3,4055	1,09	3,6717	1,19
KPMG		?	5,1524	1,86 *	5,3881	1,93 *	5,0223	1,89 *	5,2241	1,91 *
PwC		?	4,1059	1,51	3,7432	1,32	3,3559	1,25	4,0699	1,51
Industry indicator&										
OIL&GAS		?	3,2423	0,85	1,6560	0,41	0,9514	0,23	0,4203	0,10
INDUSTRIAL		?	1,8835	0,68	1,0718	0,33	1,2957	0,45	-0,6774	-0,21
BASIC MATERIALS		?	-0,1566	-0,04	0,6009	0,15	-2,3653	-0,62	-2,3173	-0,59
CONSUMER GOODS		?	3,3419	1,16	2,4792	0,78	1,6820	0,57	-0,2320	-0,07
HEALTHCARE		?	-0,6144	-0,15	-0,9591	-0,20	0,8180	0,19	-2,1457	-0,46
CONSUMER SERVICES		?	1,4071	0,46	-0,5743	-0,17	-0,5841	-0,19	-1,6154	-0,50
TELECOMMUNICATIONS		?	5,5484	1,37	6,0318	1,55	5,5475	1,34	3,6443	0,88
UTILITIES		?	1,7318	0,49	2,1803	0,59	1,5661	0,46	0,8457	0,24
TECHNOLOGY		?	-5,3566	-0,68	-4,5565	-0,58	-5,3712	-0,69	-7,3680	-0,90
Moderation effects										
ENFORCEMENT*GOODWILL		?	0,1992	0,89						
ENFORCEMENT*MATERIALITY		?			0,0013	0,13				
ENFORCEMENT*IMMATERIAL		?					-0,6002	-1,26		
Materiality indicators \S										
ENFORCEMENT*0-25% quartile of materiality		?							0,0325	0,08
ENFORCEMENT*25-50% quartile of materiality		?							0,4855	0,99
ENFORCEMENT*50-75% quartile of materiality		?							0,3216	0,80
Adjusted R ² and F – value			0,1968	3,90 ***	0,1405	2,93 ***	0,1718	3,45 ***	0,1571	2,89 ***
Maximum VIF@				2,30		1,49		1,35		2,64

*, **, *** indicate statistical significance at the 10 percent, 5 percent and 1 percent levels, respectively. \S The benchmark used for materiality is the quartile 75-100%. \P The benchmark for auditors is Deloitte. $\&$ The benchmark used for industries is Financials. @Maximum VIF shows the highest VIF-value for any of the explanatory variables, i.e. proxies for enforcement and materiality.

<i>Panel C: Persuasion Enforcement</i>		Model 5 Enforcement on absolute materiality (N=285)		Model 6 Enforcement on relative materiality (N=285)		Model 7 Enforcement on immateriality (N=285)		Model 8 Enforcement on quantiled materiality (N=285)	
<i>All models are mean-centred</i>		Expected direction							
Independent variables		β	t	β	t	β	t	β	t
Intercept		69,7184	13,67 ***	69,9898	13,43 ***	72,9259	14,03 ***	76,5467	13,73 ***
<i>Explanatory variables</i>									
ABSOLUTE	+	7,4522	5,06 ***						
RELATIVE	+			0,1847	2,99 ***				
IMMATERIAL	-					-10,3070	-3,86 ***		
ENFORCEMENT	+	0,1145	1,27	0,1044	1,19	0,0922	1,13	0,0732	0,75
<i>Materiality indicators§</i>									
0-25% quartile of materiality	-							-11,5452	-4,02 ***
25-50% quartile of materiality	?							-3,7615	-1,62
50-75% quartile of materiality	?							-3,6972	-1,60
<i>Control Variables</i>									
CLOSELY_HELD	+/-	-0,0268	-0,20	-0,0143	-0,10	0,0028	0,02	0,0025	0,02
CLOSELY_HELD ²	+/-	0,0004	0,20	0,0003	0,17	0,0000	0,01	0,0000	0,02
SIZE	+	-0,0253	-2,25 **	0,0168	1,84 *	0,0155	1,76 *	0,0163	1,78 *
AUDIT_COM	+	6,9426	1,31	5,0496	0,97	7,5014	1,39	6,3594	1,22
USLISTING	+	0,3864	0,23	0,7369	0,42	0,9457	0,54	0,6807	0,40
PROFIT	-	-2,2514	-0,62	-2,4729	-0,68	-2,7132	-0,77	-2,4774	-0,70
MASCULINITY	+	-0,1054	-2,99 ***	-0,0959	-2,71 ***	-0,0954	-2,73 ***	-0,0949	-2,66 ***
UNCERTAINTY AVOIDANCE	-	-0,1626	-3,81 ***	-0,1640	-3,74 ***	-0,1557	-3,57 ***	-0,1509	-3,20 ***
S_MARKET	+	-1,0437	-4,04 ***	-1,0908	-3,99 ***	-1,0889	-4,13 ***	-1,0664	-3,95 ***
<i>Auditor indicators‡</i>									
E&Y	?	3,2570	1,04	4,0161	1,22	3,2282	1,01	3,2962	1,02
KPMG	?	5,0419	1,74 *	5,4121	1,88 *	5,1387	1,85 *	5,0849	1,76 *
PwC	?	3,9535	1,37	3,7011	1,28	3,3179	1,18	3,7969	1,31
<i>Industry indicator&</i>									
OIL&GAS	?	2,2787	0,58	1,2324	0,30	-0,1153	-0,03	-0,0038	-0,00
INDUSTRIAL	?	1,7076	0,61	1,3752	0,41	0,9552	0,32	-0,8555	-0,26
BASIC MATERIALS	?	-0,2237	-0,06	0,7952	0,20	-2,5541	-0,63	-2,4758	-0,58
CONSUMER GOODS	?	2,9668	1,05	2,1432	0,68	1,6022	0,54	-0,2409	-0,08
HEALTHCARE	?	-0,7114	-0,17	-0,1481	-0,03	0,6698	0,15	-2,1145	-0,44
CONSUMER SERVICES	?	0,7783	0,25	-1,2915	-0,37	-1,3999	-0,43	-2,4456	-0,71
TELECOMMUNICATIONS	?	5,0129	1,26	4,8592	1,29	4,9449	1,21	3,1929	0,76
UTILITIES	?	1,3259	0,37	2,1839	0,58	1,0957	0,31	0,3677	0,10
TECHNOLOGY	?	-5,8008	-0,73	-4,7681	-0,62	-6,0509	-0,76	-7,7178	-0,93
<i>Moderation effects</i>									
ENFORCEMENT*GOODWILL	?	-0,0545	-0,17						
ENFORCEMENT*MATERIALITY	?			-0,0161	-1,15				
ENFORCEMENT*IMMATERIAL	?					-0,2605	-0,43		
<i>Materiality indicators§</i>									
ENFORCEMENT*0-25% quartile of materiality	?							0,1841	0,30
ENFORCEMENT*25-50% quartile of materiality	?							0,0902	0,23
ENFORCEMENT*50-75% quartile of materiality	?							0,0167	0,05
<i>Adjusted R² and F – value</i>									
		0,1713	3,45 ***	0,1241	2,68 ***	0,1491	3,07 ***	0,1335	2,56 ***
<i>Maximum VIF@</i>									
			2,30		1,46		1,50		2,34

*, **, *** Indicate statistical significance at the 10 percent, 5 percent and 1 percent levels, respectively. §The benchmark used for materiality is the quartile 75-100%. ‡The benchmark for auditors is Deloitte. &The benchmark used for industries is Financials. @Maximum VIF shows the highest VIF-value for any of the explanatory variables, i.e. proxies for enforcement and materiality.

Table 8 – Robustness tests for enforcement

Independent variables	Model R1 - Absolute maternity (ABSOLUTE)				Model R2 - Relative maternity (RELATIVE)			
	Brown et al. (2013) (N=283)	Kaufmann et al. (2014) (N=285)	Djukanov et al. (2008) (N=285)	Legal Origin (N=285)	Brown et al. (2013) (N=285)	Kaufmann et al. (2014) (N=285)	Djukanov et al. (2008) (N=285)	Legal Origin (N=285)
Expected direction								
Intercept	66.3416	70.1003	69.4461	67.5579	70.1822	70.9979	70.3461	69.2701
Enforcement variables								
ABSOLUTE	7.3585	7.4072	7.3441	7.5482	7.1839	7.1839	7.1839	7.1839
RELATIVE								
Control Variables								
CLOSELY_HELD	-0.0379	-0.0639	-0.0361	-0.0681	-0.0497	-0.0614	-0.0474	-0.0833
CLOSELY_HELD_2	0.0005	0.0011	0.0005	0.0008	0.0008	0.0014	0.0008	0.0012
SIZE	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
SIZE_LOG	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
SIZE_LOG_COM	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
USLISTING	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
PROFIT	-1.8392	-1.8488	-1.8300	-2.3555	-2.4678	-2.4886	-2.4853	-2.9403
MAJORITY	-0.0906	-0.0791	-0.0962	-0.1388	-0.0837	-0.0864	-0.0912	-0.1228
UNCERTAINTY_AVOIDANCE	-0.1679	-0.1679	-0.1679	-0.1679	-0.1679	-0.1679	-0.1679	-0.1679
LEGAL_ORIGIN	-1.0772	-1.0772	-1.0772	-1.0772	-1.0772	-1.0772	-1.0772	-1.0772
Adjusted R ²	0.1698	0.1698	0.1698	0.1698	0.1698	0.1698	0.1698	0.1698
Maximum VIF@	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30
Alternative Enforcement variables								
BROWN	0.0903	0.1033	-1.2388	0.0438	0.0438	0.0438	-1.7004	-0.76
KUFGMANN								
LEGAL_ORIGIN								
- French origin			1.3617	1.3617	1.3617	1.3617	1.3617	1.3617
- Scandinavian origin			8.1696	8.1696	8.1696	8.1696	8.1696	8.1696
- Germanic origin			-0.7998	-0.7998	-0.7998	-0.7998	-0.7998	-0.7998
Adjusted R ² and F	0.1698	0.1698	0.1698	0.1698	0.1698	0.1698	0.1698	0.1698
Maximum VIF@	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30

(Continued)

(table continues)

		Model I8 - Immaturity (IMMATERIAL)						Model I9 - QUARTILE MATERIALITY									
		Brown et al. (2013) (N=283)		Kaufmann et al. (2014) (N=285)		Djukanovic et al. (2008) (N=285)		Legal Origin (N=285)		Brown et al. (2013) (N=283)		Kaufmann et al. (2014) (N=285)		Djukanovic et al. (2008) (N=285)		Legal Origin (N=285)	
		β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t
Expected direction																	
Independent variables																	
Interest	+	-0.059	-0.05	0.007	0.25	-0.031	-0.2	-0.036	-0.15	0.000	0.07	0.009	0.30	0.001	0.01	-0.016	-0.13
Explanatory variables																	
IMMATERIAL	+	-0.1763	-3.74 ***	-0.16671	-4.07 ***	-0.17279	-14.01 ***	-0.1373	-3.38 ***	-0.1653	-4.61 ***	-0.13463	-4.45 ***	-0.13761	-4.13 ***	-0.0879	-0.28 ***
Alternative indicators																	
25-50% quartile of immaturity	?																
50-75% quartile of immaturity	?																
Control Variables																	
CLOSELY_HELD	+/																
CLOSELY_HELD 2	+/																
SIZE	+	0.0158	1.78 *	0.0117	1.34	0.0173	1.51 *	0.0196	2.06 **	0.070	1.86 *	0.0125	1.41	0.086	2.01 **	0.038	2.05 *
AUDIT_COM	+	8.1899	1.30	16.0707	2.88 ***	6.1396	1.52	0.980	1.45	7.2285	1.37	15.8112	2.85 ***	7.9359	1.46	8.2507	1.52
ROA	+	0.0001	0.01	0.0001	0.01	0.0001	0.01	0.0001	0.01	0.0001	0.01	0.0001	0.01	0.0001	0.01	0.0001	0.01
PROFIT	+	-2.2031	-0.63	-2.2667	-0.68	-2.2372	-0.64	-2.7819	-0.80	-2.1795	-0.61	-2.1605	-0.63	-2.1183	-0.60	-2.2604	-0.64
MASCULINITY	+	-0.0957	-1.62 *	0.0161	0.39	-0.0982	-2.22 **	-0.0853	-1.59	-0.0853	-1.59	0.0232	0.55	-0.0965	-2.15 **	-0.1355	-1.91 *
UNCERTAINTY AVOIDANCE	+	-0.1560	-3.63 ***	0.1085	1.42	-0.1479	-3.27 ***	-0.1441	-3.20 ***	-0.1580	-3.63 ***	0.1106	1.44	-0.1457	-3.20 ***	-0.1355	-1.91 *
S-MARKET	+	-1.0949	-4.05 ***	-0.8482	-1.81 *	-1.1087	-4.16 ***	-1.1441	-3.74 ***	-1.0594	-3.88 ***	-0.8156	-1.60	-1.0776	-4.02	-1.1471	-3.81 ***
Autoregressors																	
AR(1)	?	2.9250	0.88			2.8859	0.91	2.8005	0.91	2.9758	0.89	1.6821	0.52	3.8212	0.89	3.0260	0.97
AR(2)	?	4.8932	1.76 *			4.8185	1.74 *	4.9659	1.86 *	4.9123	1.69 *	3.5682	1.22	4.8220	1.66 *	5.0381	1.86 *
PwC	?	3.3149	1.20			3.0470	1.09	3.3314	1.21	3.6614	1.29	2.6792	0.95	3.7717	1.19	3.8950	1.31
None-Big 4 firms	-																
Industry indicator																	
INDUSTRIAL	?	-3.2615	-0.93	-0.0169	-0.20	-0.1108	-0.30	-0.1553	-0.11	-0.6650	-0.16	-0.5523	-0.14	-0.5447	-0.14	-0.8526	-0.23
CONSUMER GOODS	?	-1.3479	-0.46	1.7099	0.58	1.0237	0.34	-0.7216	-0.13	-2.5398	-0.62	-3.2027	-0.83	-0.9891	-0.31	-0.8079	-0.25
BASIC MATERIALS	?	-2.4901	-0.62	-3.1399	-0.83	-2.5895	-0.64	-2.6130	-0.67	-2.5398	-0.62	-3.2027	-0.83	-2.6885	-0.64	-3.1598	-0.81
HEALTHCARE	?	1.9166	0.65	2.1252	0.71	1.7044	0.57	1.6807	0.56	0.0798	0.02	0.1005	0.03	-0.1003	-0.03	0.6547	0.15
CONSUMER SERVICES	?	1.5062	0.35	2.7098	0.67	1.7145	0.40	1.1132	0.26	-1.5537	-0.33	-0.8194	-0.19	-1.3406	-0.29	-2.4108	-0.54
TELECOMMUNICATIONS	?	-1.2730	-0.40	-0.4814	-0.14	-1.5888	-0.49	-0.9396	-0.31	-2.4480	-0.74	-1.8053	-0.57	-2.7888	-0.82	-2.4977	-0.73
UTILITIES	?	1.5880	0.45	1.8729	0.58	1.6181	0.46	1.4984	0.43	0.9843	0.13	0.8013	0.12	0.9304	0.08	0.8266	0.23
TECHNOLOGY	?	-6.1255	-0.78	-7.2507	-0.95	-6.5930	-0.92	-6.1427	-0.80	-7.8668	-0.96	-9.5523	-1.19	-8.2922	-1.00	-7.8661	-0.98
Alternative Enforcement variables																	
BROWN		0.023	0.44	24.6548	4.18 ***					0.0534	0.23	20.5642	4.19 ***				
KUFMANN																	
DJANKOV																	
Legal origin																	
- French origin																	
- Scandinavian origin																	
- German origin																	
Adjusted R ² and F		0.1499	3.18 ***	0.1392	3.36 ***	0.1515	3.20 ***	0.1561	3.36 ***	0.1400	2.85 ***	0.1848	3.57 ***	0.1431	2.90 ***	0.1958	3.42 ***
Maximum VF @		1.73		5.79		1.57		6.01		2.33		5.84		2.32		6.14	

***, **, * indicate statistical significance at the 10 percent, 5 percent and 1 percent levels, respectively. \$ the benchmark used for materiality is the quartile 75-100% of the benchmark used for auditors is DeLoitte. # the benchmark used for industries is Financials. ## the benchmark used for legal origin is English legal origin. @Maximum VF shows the highest VF-value for any of the explanatory variables, i.e. proxy for enforcement and materiality.

The impact of enforcement and limitations to the auditors' liability on audit efforts

Carsten Allerslev Olsen

Copenhagen Business School

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Abstract

This study examines how the enforcement of financial reporting, the enforcement of auditors and the limitations to the auditors' liability impact the auditors' auditing efforts of the statutory financial report. Previous research suggests that strict enforcement makes auditors increase their audit efforts and that a limitation to the auditors' liability makes auditors reduce their audit efforts. However, unlike prior research, this study distinguishes between different kinds of enforcement and applies an enforcement measure designed to capture this particular kind of enforcement as opposed to applying a general measurement of enforcement. Understanding how different kinds of enforcement affect the audit efforts may help regulators and enforcers to be better able to achieve the desired enforcement outcomes. Based on a sample of six countries, this study finds that a strict financial reporting enforcement and limitations to the auditors' liability have a significant and negative influence on the audit efforts. Further, the strict enforcement of auditors has a positive and significant influence on the audit efforts. The study contributes to the literature by exploring how different kinds of enforcement impact the auditors' auditing behaviour.

Key Words: Audit fee; Audit efforts; Enforcement; Enforcement of financial reporting; Enforcement of auditor; Liability cap; Enforcement strategy

Introduction

Studies investigating the effects enforcement have on the quality of the financial reports and the compliance with mandatory disclosures are numerous (Street and Gray 2002, Glaum and Street 2003, Hail and Luez 2006, Daske et al. 2008, 2013, Christensen et al. 2013, Glaum et al. 2013, Tsalavoutas et al. 2014, Preiato et al. 2015), while studies investigating the effect enforcement has on the audit efforts is limited (Brocard et al. forthcoming). However, several studies investigate how limitations to the auditors' liabilities influence the audit efforts (Taylor and Simon 1999, Fargher et al. 2001, London Economics 2006, Srinidi et al. 2009, Choi et al. 2008, 2009, Kim et al. 2012). The objective of this paper is to investigate how enforcement and limitations to the auditors' liability influences the audit efforts when applying specific measurement for the enforcement of financial reporting and auditors, while simultaneously considering limitations to the auditors' liability. This will provide a more detailed picture of how enforcement and limitations to the auditors' liability influences the audit efforts. This is interesting, as it may help regulators and enforcers to modify the regulations and the enforcement applied to achieve the desired auditor behaviour.

The audit risk model is utilised to identify how different kinds of enforcement, i.e., enforcement of auditors and financial reporting, as well as limitations to the auditors' liability, may influence the audit efforts. Based on this model, it is expected that a strict financial reporting enforcement may cause preparers to be more diligent in preparing the financial statements, which may make the auditors reduce their audit efforts. It is also expected that a strict enforcement of the auditors may cause auditors to perform additional audit efforts because the auditor faces an increased risk of financial and reputation losses. Finally, it is expected that limitations to the auditors' liability may reduce the audit efforts, as the benefits of performing additional audit efforts are quickly outweighed by the marginal costs of performing the additional audit efforts.

The study is based on six European countries with differences in the strictness of the enforcement of both auditors and financial reporting and where half of the countries have limited the auditors' liability. Audit efforts are proxied by the size of the audit fee. The analysis shows that a strict financial reporting enforcement has a significant and negative effect on the audit efforts, which indicates that preparers working in a strict financial reporting enforcement environment deliver a financial report of a higher quality than preparers working in a weak enforcement environment. The higher quality of the financial report reduces the audit risk and thereby also the amount of audit efforts the auditor has to perform. The analysis also reveals that a strict enforcement of auditors has a positive and significant effect on the audit efforts of the auditor, i.e., the auditor performs additional audit efforts because of the increased risk of suffering financial and/or reputation losses due to the strict enforcement. Finally, the study finds that the audit efforts are significantly lower in countries with a limited auditors' liability.

This study makes several important contributions to the existing literature. First, it analyses the effect of enforcement by applying indices that are specifically developed to measure the enforcement of financial reporting and of auditors. The index measuring the financial reporting enforcement is created by Johansen et al. (2018) and measures the actual public enforcement. The index measuring the enforcement of auditors is created by Brown et al. (2014) and measures the strictness of the auditors' working environment. Applying these indices simultaneously helps clarify how different kinds of enforcement impact the audit efforts. Consequently, the study provides a more nuanced picture of the effects of enforcement, as prior literature has applied enforcement proxies that measure the general strictness of enforcement and has not distinguished between different kinds of enforcement. A better understanding of how a different kind of enforcement impacts the auditors' behaviour is of interest to regulators and enforcers, as it may help in designing regulation and enforcement that may alter the auditors' behaviour in a more desirable direction.

Second, the study adds to the knowledge of determinants for the size of audit fees by documenting that country-level factors may be significant determinants for the size of the audit fee. The effects of country-level factors are largely unexplored within this stream of research (Hay et al. 2006, Hay 2013, DeFond and Zhang 2014). Third, the study adds to the existing literature by developing a new and timely measurement of the auditors' liability. The existing measurements of the auditors' liability have become obsolete due to changes in the underlying regulation within the European countries (EU Commission 2007, ACCA 2017). Further, the study responds to the call of Hay et al. (2006) for more research on how the regulatory environment affects audit fees, and thereby the audit efforts. This is done by analysing how limitations to the auditors' liability act together with different kind of enforcement.

The remainder of the paper has been organised as follows. Section 2 outlines the background along with the development of the research hypotheses. Section 3 describes the methodology and research design, including the sample and its collection. Descriptive statistics and correlations are discussed in Section 4 while Section 5 discusses the empirical results. Robustness tests are conducted in Section 6. The article closes with a summary and a conclusion.

Background and hypothesis development

The literature investigating the supply and demand for audit services and its' pricing is divided into two research streams. The first research stream focuses on the demand for auditing services, i.e., the characteristics that the auditees would like the auditors to have. The second research stream focuses on determinants influencing the supply of auditing services, i.e., the factors that influence the auditor when pricing the auditing services.

Prior studies investigating the demand side find that audit services are demanded because they reduce the cost of capital, improve the credit ratings of the audited firms and provide a signalling value to the firms'

stakeholder (Kim et al. 2011, Lennox and Pittman 2011, DeFond and Zhang 2014). Importantly, the signalling value only exists if the audit is voluntary. An audit also helps stakeholders monitor the performance of managers, which reduces the agency costs (Jensen and Meckling 1976, Watts and Zimmerman 1983, Francis et al. 2011). Other determinants known to influence the demand for auditors are their qualifications, either generally or specifically (Big 4 auditors and industry specialists), corporate governances and the existence of an internal auditor (Francis et al. 1999, Turley and Zaman 2007, Cahan et al. 2008, Hay et al. 2008).

The literature covering the supply side is extensive and focuses on identifying characteristics influencing the risk exposure of the auditors (engagement risk) to financial losses from litigation and/or regulatory penalties and reputational losses. A reputational loss may impair the auditors' ability to retain current clients and attract future clients, which may reduce the future earning potential of the auditor (DeFond and Zhang 2014). The risk of suffering either a financial and/or a reputational loss can be reduced by charging a risk premium or by increasing the applied audit efforts, both of which results in higher audit fees (Simunic and Stein 1996, Choi et al. 2008, 2009, Kim et al. 2012, DeFond and Zhang 2014).

The identified determinants from the two research streams are classified into three categories: client characteristics, auditor characteristics and engagement characteristics (Hay et al. 2006, Hay 2013, Defond and Zhang 2014). Client characteristics include size, complexity, profitability, leverage and industry. Auditor characteristics include the auditor firm size (Big 4 or not) and changes of auditors. Engagement characteristics include the timing of the audit (busy season), audit problems and non-auditing services. From these characteristics, it can be concluded that enforcement is rarely considered as a possible determinant for the audit fee.

One of the few cross-border studies, which incorporate the effects of enforcement, is the exploratory study of Taylor and Simon (1999). They find that firms located in countries with strict regulations, high disclosure requirements and a higher litigation risk have higher audit fees. On a similar note, Fargher et al. (2001) find that an increased risk of litigation and stricter regulation is associated with higher audit fees. Srinidhi et al. (2009) observe that strong institutions increase the average audit fee but also reduce the incremental demand for specialist auditors, which indicates a more transparent accounting environment. Kim et al. (2012) find that audit fee premiums derived from the adoption of IFRS are lower in countries with strong legal regimes relatively to countries with weak legal regimes. Kou and Lee (2018) finds that firms that capitalise development costs experience higher audit fees, which are mitigated if the firm is located in a country with a strict enforcement environment.

Choi et al. (2008) investigate how the auditors' liability impacts the audit pricing and find that a strict liability regime increases the audit fees and that the premium charged by Big 4 auditing firms is lower in a weak liability regime than in a strong liability regime. Choi et al. (2009) examine how a cross-listing impacts the audit fee and find that firms cross-listed in countries with a strong legal regime are paying higher audit fees than non-cross-listed firms. Further, they find that a cross-listing premium increases with the difference in the strength of the legal regimes of the home country and the cross-listed country, i.e., the larger the difference is in the strength of the legal regimes, the larger the audit fee. London Economics (2006) investigates how limitations (caps) to the auditors' liability impact the firms' cost of capital. They do this by comparing the cost of capital for firms located in countries with limits to the auditors' liability with the cost of capital for firms located in countries without limits to the auditors' liability, while controlling for the effects of the enforcement environment. They find that the strength of the enforcement environment and limitations to the auditors' liability do not significantly impact the cost of capital (London, 2006).

The results from the studies listed above are slightly mixed, but the overall conclusion is that a strict enforcement has a positive and significant effect on the size of the audit fee. However, all the studies utilise enforcement indices that are created to measure other things, such as investor protection and the general regulatory strength of the country and are therefore not ideal measurements for the enforcement of financial reporting and auditors (Johansen et al. 2018). Furthermore, the enforcement and liability proxies used by these studies are all created before the year 2000³⁴ (Cooke and Wallace 1990, Wingate 1997, La Porta et al. 1998, La Porta et al. 2006), which means that they no longer can be considered relevant, as the regulatory environment has undergone significant changes since their creation (EU Commission 2008, Brown et al. 2014).

The results of the literature investigating the impact that enforcement has on accounting quality and compliance with mandatory disclosure requirements (Leuz and Verrecchia 2000, Street and Gray 2002, Glaum and Street 2003, Hail and Leuz 2006, Daske et al. 2008, 2013, Christensen et al. 2013, Glaum et al. 2013, Tsalavoutas et al. 2014, Preiato et al. 2015), together with the literature investigating the cross-border determinants for audit fees, suggests that auditing fees increase when enforcement becomes stricter. These results have led to the general perception that a strict enforcement leads to increased auditing efforts. However, this conclusion is puzzling, as enforcement of financial reporting rules is found to increase the accounting quality and compliance with mandatory disclosures. This would, *ceteris paribus*, suggest that the accounting information being audited is of a higher quality, which, again, would suggest that the auditor needs to perform fewer auditing procedures to obtain the needed assurance. Likewise, the existing literature on auditors' liability finds that limitations to the liability decrease the audit fee (Taylor and Simon 1999, Fargher et al. 2001, Choi et al. 2008, 2009, Kim et al. 2012). However, none of these

³⁴ Taylor and Simon (1999), along with Fargher et al. (2001), use the enforcement measure developed by Cook and Wallace (1990). Srinidhi et al. (2009) use the components Rule of law and the component Efficiency of Judicial system developed by La Porta et al. (1998). Kim et al., (2012) base their enforcement proxy on five components from the La Porta et al. (2006), while Choi et al. (2008, 2009) base their litigation proxy on Wingate (1997).

studies differentiated between different kinds of enforcement, which is problematic, as financial reporting enforcement, enforcement of auditors and limitations to the auditors' liability are likely to influence the financial report differently. This may be explained by applying the audit risk model as shown below:

$$\text{Audit risk}^{35} = \text{Inherent risk}^{36} * \text{Control risk}^{37} * \text{Detection risk}^{38} \quad (1)$$

The model states that the audit risk is equal to the inherent risk, the control risk and the detection risk. The inherent risk and the control risk are assumed to be the auditee's risks and exist independently of the audit (ISA 200, par. A37). Theoretically, it follows that a change in one of the risks influences the remaining three risks.

Financial reporting enforcement focuses on ensuring that preparers issue financial reports without material misstatements and in accordance with the chosen financial reporting framework (Johansen et al., 2018). Financial reporting enforcement therefore targets the inherent risk and the control risk, as these are the preparers' risks. Considering the definition of the inherent risk (ISA 200, par. 13n, i, and ISA 200, par. A38), it seems reasonable to assume that the inherent risk, in all practical regards, is unsusceptible to deliberate changes by the firm. Furthermore, it seems reasonable to assume that the employees of the firm possess the necessary competence and are able to execute their duties with due diligence. Increases in the

³⁵ Audit risk denotes the risk that the auditor expresses an inappropriate audit opinion when the financial statements are materially misstated (IAS 200, par 13c).

³⁶ Inherent risk denotes the susceptibility of an assertion about a class of transaction, account balance or disclosure to a misstatement that could be material, either individually or when aggregated with other misstatements, before consideration of any related controls (IAS 200, par. 13n, i).

³⁷ Control risk denotes the risk that a misstatement that could occur in an assertion about a class of transaction, account balance or disclosure and that could be material, either individually or when aggregated with other misstatements, will not be prevented, or detected and corrected, on a timely basis by the firms' internal control (IAS 200, par. 13n, ii).

³⁸ Detection risk denotes the risk the procedures performed by the auditor to reduce audit risk to an acceptable low level will not detect a misstatement that exists and that could be material, either individually or when aggregated with other misstatements (IAS 200, par 13e).

strictness of the financial reporting enforcement will, considering these assumptions, make the firm perform additional procedures to detect errors. This may be done by reducing the control risk, i.e., the firm implements additional internal controls to be able to withstand the increased scrutiny from the regulatory authorities. The auditors are not directly affected by changes in the enforcement of financial reporting but will indirectly, other things being equal, experience a decline in the audit risk, which is caused by the reduction of the control risk. Consequently, auditors are able to reduce the detection risk (and thereby their audit efforts) without increasing the audit risk³⁹. However, the reduction in the audit efforts may be moderated if the auditor expects that a ruling by the enforcers against the audited firm may spill over into a reputational loss or a financial penalty for the auditor. This may occur if the enforcers of auditors are required to open an investigation of the performed audit if clients of the auditor have been sanctioned by the enforcers of financial reporting. This moderation is not expected to fully off-set the negative effect enforcement of financial reporting has on the audit efforts, which means that the following hypothesis can be stated:

Hypotheses 1: *The audit efforts decrease as the financial reporting enforcement becomes stricter, other things being equal.*

The enforcement of auditors focuses on ensuring that audits performed are in compliance with relevant legislation and the Generally Accepted Auditing Standards (GAAS) (Brown et al. 2014). Consequently,

³⁹ This can be illustrated by the following example:

Assume that the audit engagement must have an assurance level of 95% and has the following risks: Inherent risk (IR)=99%; Control risk(CR)=99%; and Detection risk(DR)=97%. Applying these figures will make the model look as follows: $0.99(IR)*0.99(CR)*0.97(DR)=0.95$, or a total audit risk of 95%. Assume that the country introduces a stricter enforcement on financial reporting and thereby forces the firm to implement additional internal controls that will make the control risk increase from 0.99 to 0.999. These changes will make the model look as follows: $0.99(IR)*0.999(CR)*0.97(DR)=0.96$, or a total audit risk of 96%. Assuming that the auditor will continue to accept an audit risk of 95% will make it possible to reduce the detection risk to 96%, which will make the model look as follows: $0.99(IR)*0.999(CR)*0.96(DR)=0.95$, or an unchanged audit risk of 95%. Consequently, a stricter enforcement environment makes it possible for the auditor to reduce his auditing procedures without increasing the total audit risk, which may be reflected in lower audit fees.

changes in the strictness of the enforcement of auditors incentivise them to adjust the accepted audit risk by either increasing or decreasing the performed audit efforts. For example, increases in the strictness of the enforcement of auditors will, ceteris paribus, make auditors reduce the detection risk by performing additional audit procedures⁴⁰ and thus reduce the risk of suffering a reputational and/or financial loss. The audited firms' risks are unaffected by changes in the enforcement of auditors, as the sole focuses of this kind of enforcement is on the auditors. Subsequently, the auditors must, ceteris paribus, increase their audit fee to cover the marginal costs of performing the additional audit efforts. This leads to the following hypothesis:

Hypothesis 2: *The audit efforts increase as the enforcement of auditors becomes stricter, other things being equal.*

The strictness of the financial reporting enforcement and the enforcement of auditors are not the only items auditors must consider when determining the acceptable audit risk. They must also consider the legal liability regime. Auditors risk being litigated even without the occurrence of an audit failure and when they have performed the audit in accordance with the relevant legislation and GAAS (DeFond and Zhang 2014). Assuming that the auditor is a homo economicus, he will attempt to minimise his efforts relative to the expected benefits. Consequently, the auditor may therefore find it attractive to perform an audit equal to the minimum legislative and GAAS requirements. Auditors choosing this course of action expose themselves to an increased risk of being litigated because GAAS is a subjective concept involving professional judgements, contextual decisions, etc. This means that the auditors' evaluation of GAAS may differ from that of the court, which may therefore rule against the auditor, who then becomes liable for damages. A limit on the auditors' liability will, ceteris paribus, make the auditor reduce/remove audit

⁴⁰ Continuing the example from above and assuming that the detecting risk is reduced from 97% to 99%, the audit risk model will look as follows: $0.99(IR) * 0.99(CR) * 0.99(DR) = 0.97$, or a total audit risk of 97% compared to the previously 95% risk.

procedures beyond a certain threshold, as the marginal costs of performing the additional procedures exceeds the expected benefits. Put differently, auditors exposed to very low liability limits will more quickly experience that the marginal costs of additional audit efforts exceed the expected benefits than will auditors exposed to high liability limit, or no limit. The effect of a limit on the auditors' liability will, *ceteris paribus*, lead to lower audit fees.

Several European countries have established a limit on how much auditors can be required to pay in compensation (London Economics 2006, EU Commission 2007). Prior literature find that legal litigation is an important factor for the size of the audit fee, as stricter legal litigation regimes are associated with higher audit fees (Taylor and Simon 1999, Fargher et al. 2001, Choi et al. 2008, DeFond and Zhang 2014). This indicates that auditors charge a risk premium for the risk of litigation. A survey conducted by London Economics (2006) show that the vast majority of auditors from the Big 4 and middle tier firms believe that a limitation in the auditors' liability will not affect the value of the audit. However, 37% of preparers of the financial report and 45% of the institutional investors believe that financial reports audited under a regime of limited liability provide a less true and less fair view (London Economics 2006). This view is particularly strong for firms located in countries with a limited liability regime, as 51% of the firms in these countries believe that the financial report provides a less true and less fair view (London Economics 2006). Together, these results indicate that preparers and users of the financial report consider limits to the auditors' liability to have a negative impact on the audit efforts. The following hypothesis can therefore be stated:

Hypothesis 3: *The audit efforts decrease if the auditors' liability is limited by a cap, other things being equal.*

Methodology and research design

Sample and data

The initial sample consists of 600 firms from six European countries. The countries included in the sample are Belgium, Denmark, Finland, France, Germany and The United Kingdom (UK), and they have been selected on the basis of a five-step process. In the first step, France, Germany and UK were selected due to the size of their capital markets. This selection criterion ensures that the most valuable and largest firms in Europe are included in the sample and thus ensures that the sample covers the countries where the majority of investors are present. Second, an additional three countries are added (Belgium, Denmark and Finland) to ensure a wider variation in the financial reporting enforcement, enforcement of auditors and limitations in the auditors' liability. Third, the 100 firms with the highest market value in each country were selected, thus limiting the selected firms to those that are listed on a stock exchange. The selected firms are limited to 100 from each country, which is meant to ensure that the firms are active and frequently traded on the exchange, considering the sizes of the different exchanges, and to ensure that each country is represented with a relatively similar number of observations. The value of the firms was measured according to the market value on December 31, 2014 and was retrieved from ThomsonOne. Fourth, following prior literature, firms from the financial industry (SIC codes 8000-8999) have been removed from the sample (133) because they are subject to extensive industry regulation. Fifth, firms with the following characteristics are removed from the sample: not listed on an exchange within its country of origin (8), the financial statement is not available in English (26), have not disclosed the audit fees (11), or because of other missing data (31). The reduction of the initial sample and the allocation of the final sample across country and industry is shown in table 1, panel A and B, respectively.

[Insert Table 1 – overview of sample around here]

Dependent variable – Audit fee

The dependent variable is the total audit fee in thousands EUR converted to the natural log (AUDIT_FEE).

The audit fees have been collected by hand from the firms' 2014 consolidated financial statements by the researcher (along with information about non-auditing services, tax services and other services) and registered in the reporting currency of the firm. Audit fees in currencies other than EUR (DNK, GBP and USD) have been converted to EUR using the average exchange rate for 2014. The average exchange rate is calculated based on the daily exchange rates disclosed by the Danish National Bank. The collected data has been verified in two ways. First, 114 observations of the sample, approximately 33% of the final sample, have been re-performed to ensure the validity of the sample. Second, the total remuneration to the firms' auditors has been cross-checked to total audit fees, including non-auditing services obtained from Datastream. All discrepancies in excess of 5% have been investigated and resolved. The description and measurement of the dependent variable is summarised in table 2, panel A.

Independent variables

This section describes how the explanatory variables and the control variables are measured and why they have been included. The description and measurement of the explanatory variables are shown in table 2, panel B while the description and measurement of the control variables are shown in table 2, panel C.

Financial reporting enforcement

Financial reporting enforcement is measured by the enforcement index developed by Johansen et al.

(2018). The index measures the actual public enforcement of financial reporting and is based on the responses of a questionnaire from the European enforcement bodies and the regulatory specialists of a Big 4 auditing firm in 17 European countries. Consequently, the measurement of the enforcement of financial reporting is considered to be more accurate than any of the other available enforcement indices, as they tend to be based on either general rules of law or the formal rules of financial reporting (Johansen et al., 2018). Johansen et al. (2018) develops three enforcement indices; this article applies the total enforcement

index from Johansen et al. (2018) (ENFOR_TOT). The remaining two indices are applied as robustness tests and measure financial reporting enforcement applied under different enforcement strategies. The enforcement score of the individual countries is anonymous, as this was a condition for the European enforcement bodies to participate in the survey (Johansen et al., 2018). It is expected that the financial reporting enforcement will have a negative association with the audit fee.

Enforcement of Auditors

The measurement of the enforcement of auditors is one of two indices developed by Brown et al. (2014) that were created to capture differences in the institutional setting of the enforcement of accounting standards. One of the indices measures the enforcement of auditors, while the other index measures the enforcement of financial reporting. Both indices are based on publicly available data sources. The enforcement index for auditors is based on eight elements, in which six of the eight elements are founded on a survey conducted by the International Federation of Accountants (IFRC – data from 2011) and verified by data from the World Bank (data from 2011). These six elements measure items such as that the auditor must be licenced, if a country apply more extensive licence requirements, the on-going professional development, the existence of an audit oversight body, the ability of the oversight body to apply sanctions, the existence of a quality assurance programme, and the requirements for an audit rotation (firm or partner). The last two elements measure the level of the audit fees (taken from Worldscope and measures the level of audit fees in 2008) and the level of litigation risk (based on the Wingate index) (Brown et al., 2014).

The applied measure for the enforcement of auditors (ENFOR_AUD) is an adjusted version of the auditor enforcement index developed by Brown et al. (2014), as the last two elements, those measuring the level of audit fees and the level of litigation risk, have been removed from the applied enforcement index. The reason for removing these elements is because the level of audit fees in 2008 is considered irrelevant for

2014 and the Wingate litigation index is considered obsolete, as it dates back to 1997. Furthermore, this study applies a separate measurement of the auditors' litigation risk. It is expected that BROWN_AUD exhibits a positive association with the audit fee.

Auditors' liability

The dichotomous variable LIABILITY_CAP measures whether the auditors' liability has been limited.

LIABILITY_CAP is coded as one if a country has implemented a limit on the auditors' liability, whether it is a legal liability cap or a contractual liability cap, and otherwise it is coded as zero. LIABILITY_CAP is based on the information provided in the appendix. It is expected that the existence of a cap will exhibit a negative association with the audit fee.

[Insert Table 2 – Overview of dependent and independent variables – around here]

Control variables

The study includes 16 control variables that prior studies have identified as likely to influence the size of the audit fee. The variable LNASSETS (log of total assets) is included as a proxy for client size, while INVREC (sum of inventory and accounts receivable over total assets), BUS_SEG (number of business segments) and GEO_SEG (number of geographical segments) are included as proxies for client complexity (Simunic 1980, Choi et al. 2008, Kim et al. 2012). The variables, BUS_SEG and GEO_SEG, have been chosen as proxies for complexity rather than the more commonly used number of subsidiaries (Hay 2013), as the number of subsidiaries may be driven by tax and legal issues rather than by operational considerations. Following prior studies (Francis 1984, Hay et al. 2006, Choi et al. 2008, Kim et al. 2012), the variables, LEVERAGE (ratio of total liabilities to total assets) and ROA (return on assets), have been included as client-specific risks. Following Choi et al. (2008), SEASONED has been included as an additional proxy for the client-specific risk caused by the likely increased risk premium relating to clients who have obtained external financing by issuing shares or bonds in the capital markets. Choi et al. (2009) and Kim et al. (2012) find that firms with a

cross-listing are charged higher audit fees. The variables *US_LISTING* and *SECONDARY* are included to capture this effect. *US_LISTING* captures the effect of being cross-listed in US, while *SECONDARY* captures the effect of being cross-listed on exchanges other than US exchanges.

Following prior literature, control variables are included for selective industries (Taylor and Simon 1999, Fargher et al. 2001, Hay et al. 2006, Srinidhi et al. 2009, Hay 2013). These industries are Oil & Gas, Basic Materials, and Utilities and Telecommunications. These industries are controlled for individually, as they all are subject to additional regulation and reporting requirements.

Model

Following prior literature, the hypotheses are tested by using an OLS-regression (Hay et al. 2006, Choi et al. 2008, 2009, Kim et al. 2012, Hay 2013). The models have been centred at the mean values to ease the interpretation of the results. The model is illustrated below:

$$\begin{aligned}
 \text{AUDIT_FEE} = & \beta_0 + \beta_1 \text{ENFOR_FIN} + \beta_2 \text{BROWN_AUD} + \beta_3 \text{LIABILITY_CAP} \\
 & + \beta_4 \text{LNASSETS} + \beta_5 \text{BUS_SEG} + \beta_6 \text{GEO_SEG} + \beta_7 \text{INVREC} \\
 & + \beta_8 \text{LEVERAGE} + \beta_9 \text{ROA} + \beta_{10} \text{US_LISTING} + \beta_{11} \text{SECONDARY} \\
 & + \beta_{12} \text{SEASONED} + \beta_{13} \text{OIL\&GAS} + \beta_{14} \text{BASIC_MATERIAL} \\
 & + \beta_{15} \text{UTILITIES} + \beta_{16} \text{TELECOMMUNICATION} + \beta_{17} \text{NON_BIG4} \\
 & + \beta_{18} \text{CHANGE} + \beta_{19} \text{YEAR_END} + \varepsilon
 \end{aligned} \tag{2}$$

All reported standard errors and t-values are Huber-White-adjusted to eliminate potential heteroscedasticity problems. The variance inflator factors (VIF) are inspected and reported along with the empirical results.

Descriptive statistics and correlation

The descriptive statistics of the variables are presented in Table 3 and panel A, B and C, respectively. The size of the average audit fees varies greatly from EUR 778k in Denmark to EUR 8,074k in France. These differences are caused by firms being significantly larger in France than in Denmark and because firms in France are required by law to have a joint audit consisting of two or more independent auditors. However, if audit fees are scaled by total assets, it becomes apparent that the audit fees are significantly lower in France, Germany and in the UK than in Belgium, Denmark and Finland, which can be attributed to the significant economies of scale auditors experience when they audit large firms.

As indicated in panel B, the enforcement of auditors varies across the six countries, where the UK and France have the strictest enforcement, while Finland and Belgium have the weakest enforcement of auditors. Belgium, Germany and the UK all have limitations to the auditors' liability, while the auditors' liability in Denmark, Finland and France is unlimited. Likewise, the financial reporting enforcement ranges from a low of 55 in country F to a high of 89. In summary, the enforcement variables and limitations to the auditors' liability exhibit variations across the six countries. This indicates a reasonable cross-country setting, in which the impact of the enforcement of both financial reporting and auditors and the limitations to the auditors' liability can be tested.

[Insert Table 3– Descriptive statistics– around here]

As shown in table 3, panel C, the average total assets amount to EUR 15.2 billion, with a high of EUR 345.3 billion to a low of EUR 5.0 million. The largest firms are located in France, with an average size of EUR 27.3 billion, while the smallest firms are located in Finland, with an average size of EUR 2,269 million. A total of 14 firms have assets in excess of EUR 100 billion, while 129 firms have assets of less than EUR 1.0 billion.

The firms have an average of 3.2 business segments, 4.3 geographical segments and an average return on assets of 5.3%. The average liabilities equal 58.2% of total assets, while inventory and receivables on average equal to 27.9% of the total assets. Almost all of the firms are audited by a Big 4 auditing firm, as only 16 of the 391 firms are audited by a non-Big 4 auditing firm. A total of 110 of the firms have a cross-listing in US, while 89 firms have a secondary listing, excluding firms with a US cross-listing. A total of 92 firms have obtained external financing by issuing either shares or bonds in 2014. The majority of the firms (330) have a year-end between December 31 and February 28, which is also the period defined as the busy season. Only 19 firms have changed auditors between the years 2013 and 2014.

Table 4 presents the Spearman correlation coefficients. AUDIT_FEE exhibits a negative and significant correlation with ENFOR_TOT and a positive and significant correlation with BROWN_AUD and LIABILITY_CAP. These correlations provide a preliminary support for the hypotheses. BROWN_AUD is negatively and significantly correlated with ENFOR_TOT, which further lends support to our hypotheses. LIABILITY_CAP is negatively and significantly correlated with BROWN_AUD and ENFOR_TOT. None of the variables exhibit signs of multicollinearity. The control variables generally exhibit a significant correlation with AUDIT_FEE, where LNASSETS exhibit a particular high correlation of 0.9060.

[Insert Table 4 – Pearson correlation for dependent and independent variables – around here]

Empirical results

Table 5 reports the empirical results, in which it is evident that the model is highly significant, with an F-value of 135.28 ($p < .0001$) and an explanatory power of 0.8674, which is in line with prior literature. From table 5, it is initially evident that the coefficients of the explanatory variables act as expected, which is also

true for most all the control variables. Thus, the model appears to behave as expected, and the VIF's are also at an acceptable levels⁴¹.

[Insert Table 5 – Analysis of regression results – around here]

Focusing on the effects of enforcement, it is apparent from table 5 that enforcement of financial reporting is negative and highly significant ($t=-4.59$; $p<.0001$). This result is consistent with the notion that a strict enforcement environment on financial reporting makes the auditor apply fewer audit efforts and thus supports the theory that preparers are incentivised to produce a financial report of a higher quality if the financial reporting enforcement becomes stricter. Auditors are therefore able to achieve the desired audit risk by performing fewer audit procedures, which may lead to lower audit fees. The high level of significance of the result indicates that auditors are not particularly concerned about suffering penalties or reputational losses from the spill over effects of the financial reporting enforcement, which was expected to moderate the negative effect of the financial reporting enforcement. The effect is not only significant statistically but also economically, as a change from the average level of enforcement (66.4) to the highest (89) will reduce the audit fee by approximately 32.0%, which equals a reduction in average audit fee of EUR 1,173k, or a change in the average audit fee from EUR 3,665k to approximately EUR 2,492k. Similar, a change from the average level of financial reporting enforcement to the weakest (55) will increase the audit fees by approximately 17.7%, or increase the average audit fee by EUR 649k.

⁴¹ Variables are considered to be at an acceptable level if their VIF's are below 10 (Wooldridge (2013), page 94). Furthermore, none of the VIF's exceeds the more conservative threshold of 5, as suggested by Montgomery et al. (2015), page 296.

The enforcement of auditors is positive and significant at a 1%-level in all three models, which suggests that auditors perform additional auditing procedures if the enforcement of auditors becomes stricter. The result is significant both statistically and economically, as a change from the average level of enforcement of auditors (17.06) to the strictest (20) will increase the audit fees by approximately 31.6%, or an increase in the average audit fee of EUR 1,145k. A reduction in the enforcement of auditors to the lowest level (14) will reduce the average audit fee by approximately EUR 1,199k.

Limitations in the auditors' liabilities appear to reduce the audit efforts, as the result is negative and significant ($t=-3.03$; $p=p.0026$). From this result, it follows that if a country introduces a limit to the auditors' liability, it can be expected that the average audit fee will fall by approximately 22.1% or EUR 809k.

In addition to the results from the explanatory variables, it is worth noting that geographical diversity impacts the audit fee more than product diversity does, as GEO_SEG ($t=4.27$; $p<.0001$) is more significant than BUS_SEG ($t=3.02$; $p=0.0027$). A dual listing in the US appears to have a positive and significant impact ($t=3.01$; $p=0.0027$) on the audit fee, while a dual listing in countries other than the US has a much weaker impact on the audit fee ($t=1.82$; $p=0.0699$). This finding is similar to that of Choi et al. (2009), who observe that auditors charge higher audit fees for firms with a cross-listing in a country with a stricter enforcement environment (proxied by Wingate's (1997) litigation index). Finally, total assets have a very strong and significant ($t=22.42$; $p<.0001$) impact on the audit fees, which is in line with the findings of prior literature (Simunic 1980, Taylor and Simon 1999, Fargher et al. 2001, Hay et al. 2006, Choi et al. 2008, 2009, Kim et al. 2012, Hay 2013).

Robustness tests

This section contains a series of robustness tests conducted to check whether the results of the main analysis are robust to alternative variable definitions, model specifications and econometric models. Table 6 reports the results of the robustness tests, where the different robustness tests are labelled R1 to R8. The results of the robustness tests will be compared with the results of the base, as shown in table 5.

[Insert Table 6 – Robustness tests – around here]

Alternative measurements of enforcement and auditors' liability

The enforcement of a financial reporting proxy, used in the main investigation, is anonymous, which makes it difficult to reproduce and compare the findings of the study with those from prior literature. The first robustness test attempts to amend this problem by applying the Brown et al. (2014) index measuring accounting enforcement activity. It is acknowledged that this proxy is relatively new, which means that it has not been used extensively in the existing literature. However, it is the only other contemporary enforcement proxy created that attempts to measure the financial reporting enforcement. As shown in table 6, Model R1 has a fit ($F=135.39$; $p < .0001$), similar to the base model. The coefficients of enforcement of financial reporting and the enforcement of auditors are in the expected direction and both are highly significant ($t=-4.66$; $p < .0001$) ($t=7.66$; $p < .0001$), respectively. Similar to the base model, the results are significant at a 1%-level. Furthermore, LIABILITY_CAP has become positive and significant ($t=2.18$; $p=0.0302$), which is curious, as this result indicates that auditors apply additional audit efforts if the auditors' liability has an upper limit. The control variables behave in all instances in accordance with the expectations.

Another enforcement proxy tested is the Wingate (1997) litigation proxy, which primarily relates to the auditors' litigation. This proxy measures the strength of a country's legal regime regarding litigation. The

proxy is taken directly from Wingate (1997). The overall fit of model R2 ($F=128.11$; $p<.0001$) is at a similar level to that of the base model, and it shows that enforcement is highly significant ($t=2.90$; $p=0.0039$), which means that auditors, according to this model, apply significantly fewer audit efforts if the enforcement environment is strict. The result is in line with the combined effect of ENFOR_TOT, BROWN_AUD and LIABILITY_CAP in the base model (Chi-square 76.54; $p<.0001$). The effects of financial reporting enforcement is also tested for changes in how the enforcement is applied, i.e., the enforcement strategy. The base model applies the most commonly used enforcement strategy, which is a mix of two opposing archetypes (Baldwin et al. 2012). The first archetype is the deterrence strategy, which aims at securing compliance by punishing non-compliers, while the second archetype is the persuasion strategy, which secures compliance through dialogue, encouragement and education (Ayres and Braithwaite 1992, Baldwin et al. 2010, 2012). Utilising the enforcement proxies developed by Johansen et al. (2018) it is possible to identify the effect enforcement of financial reporting has if it is applied in accordance with a deterrence (model R3) or a persuasion (model R4) enforcement strategy. Based on a deterrence enforcement strategy (model R3), the financial reporting enforcement exhibit a negative and significant ($t=-2.74$; $p=0.0065$) influence on the audit efforts. The persuasion enforcement strategy (model R4) exhibit similar results ($t=-3.94$; $p<.0001$) as the base model. The enforcement of auditors under deterrence or a persuasion enforcement strategy are positive and significant ($t=4.87$; $p<.0001$) ($t=6.54$; $p<.0001$), respectively. However, the effects of limitations to the auditors' liability disappear, which indicates that this variable is susceptible to changes in the enforcement environment. The results from model R1 to R4 verify that enforcement has a significant influence on the audit efforts and that different types of enforcement have a different effect on the audit efforts.

Alternative measurement of size

Prior studies have mainly used the log of total assets as a proxy for the size of the firm, but several studies have used the log of sales as a proxy for size. Measuring size by the amount of total assets is biased against firms that generate their profits from knowledge based firms delivering services, software, consulting, etc. as the firms' knowledge base rarely is recognised and measured in the financial report. Therefore, it is prudent to make a robustness test versus such a potential bias. The results are shown in table 6, model R5, and it has a fit ($F=124.75$; $p<.0001$) similar to the base model and the explanatory variables are highly significant in the expected direction. The log of sales are highly positive and significant ($t=18.60$; $p<.0001$) and at a similar level as the log of total assets ($t=22.42$; $p<.0001$) in the base model. Conclusively, the results indicate that the base model can withstand changes in the measurement of size.

Alternative model specification and econometric model

Firms located in France are by law required to have two independent auditors who jointly perform the audit of the statutory financial report. Consequently, it is tested if this may drive the results, by applying the base model and excluding France (model R6). Model R6 ($F=93.30$; $p<.0001$) is highly significant but slightly below that of the base model. ENFOR_TOT and BROWN_AUD remain significant ($t=-3.22$; $p=0.0014$) ($t=4.24$; $p<.0001$), respectively, while LIABILITY_CAP is insignificant ($t=1.60$; $p=0.1110$). Furthermore, it is tested if any of the other countries may drive the results, which is done by excluding one country at a time and re-running model R6. These results generally follow a pattern similar to that of the base model, including the LIABILITY_CAP. Again, this suggests that the LIABILITY_CAP is susceptible to changes in the enforcement environment. These results indicate that the results are not driven by an individual country.

Similar to Choi et al. 2008, 2009, a quantile regression is performed to analyse the impact of extreme observations, without removing them from the sample. This is done by applying a quantile regression, which predicts the relationship at points of the response variable distribution other than at the mean (Cade

and Noon 2003). The regression is calculated at 0.05 per cent intervals and covers the range from 0.05 to 0.95 per cent. The result of the quantile regression (at median) is shown in table 6, model R7. All other results from the quantile regression are un-tabulated. The coefficients for the explanatory variables are similar to those of the base model. A few minor changes have occurred to the control variables, as BUS_SEG and US_LISTING have turned slightly less significant. The results of the un-tabulated quantile regressions are generally similar to those shown in model R7.

The size of non-audit services (NAS) has in prior literature been identified as influencing the size of the audit fee, as a cross subsidisation or knowledge synergies may exist between non-auditing services and auditing (Simunic 1984, Hey et al. 2006, Hay 2013). Model R8 is estimated to control for this effect by including the variable NAS_OVER_AUDIT_FEE, which is the total non-auditing services scaled by total audit fees. Model R8 has a fit ($F=132.09$; $p<.0001$) similar to the base model, and the explanatory variables exhibit a level of significance and behaviour as in the base model. NAS_OVER_AUDIT_FEE is negative and significant ($t=-2.13$; $p=0.0340$). This indicates that the more NAS the auditors performs, the lower is the audit fee. As the explanatory variables remain constant, relative to the base model, it is concluded that the amount of NAS does not change the effect enforcement has on the audit efforts. However, the result does indicate that there is some level of synergies between NAS and the audit of the statutory financial report and thus supports the finding of prior literature (Simunic 1984, Hey et al. 2006, Hay 2013). Due to these results, the interpretations from the main investigation are considered robust to changes in the model specification and econometric model.

Summary and conclusion

This paper expands the scope of the existing literature on the audit efforts when performing a statutory audit of listed firms. This is done by investigating how the strictness of enforcement, of both financial

reporting and auditors, along with limitations in the auditors' liability, influences the audit efforts. Based on an analysis of prior literature and the audit risk model, it is expected that strict financial reporting enforcement most likely has a negative impact on the audit efforts. Likewise, limitations in the auditors' liability are also expected to have a negative impact on the efforts applied by the auditor during the audit of the statutory financial report. A strict enforcement of auditors is expected to have a positive impact on the audit efforts and thus make them perform additional audit efforts.

The empirical results indicate that a strict financial reporting enforcement decreases the audit efforts. This is assumed to occur because preparers of the financial statements produce financial reports of a higher quality and because the strict enforcement of financial reporting does not influence the auditors' perceived risk towards litigation and reputational losses. These results are valid, disregarding the applied enforcement strategy. Further, the study finds that auditors increase their audit efforts if they operate in a country with a strict enforcement of auditors. Finally, the study finds that auditors working in countries without limitations on the auditors' liability apply more audit efforts when auditing the statutory financial report than in countries with limitations to the auditors' liability. Changes to the applied enforcement strategy for financial reporting enforcement do not appear to significantly influence the auditors' applied auditing efforts.

The study contributes to the existing literature in several ways. First, the study finds that the enforcement environment of a country is a significant determinant when auditors decide on the level of audit efforts to perform. Compared with prior literature, this study provides a broader picture of the consequences of a strict enforcement, as it compares the effects in a cross-country setting, whereas prior literature often focuses on a single country setting. Second, the study distinguishes between different types of enforcement and thus shows that enforcement targeted at the different parties involved in the preparation of the statutory financial report affect the audit efforts differently. This is a novel finding, as it provides a

more nuanced picture of how financial reporting enforcement affects the audit efforts. Prior literature applies enforcement proxies based on the general legal enforcement environment, such as the Wingate (1997) litigation index. The results are robust to changes in the measurement of variables, model specification and choice of econometric model.

The study has a few limitations, one being the variable used to measure limitations in the auditors' liability. The applied measure only captures the financial impact of litigation, and the result does therefore not reflect how reputational damages impact the audit efforts. This also means that the variable does not capture the likelihood of being litigated and/or convicted when litigated, which perhaps has a more direct impact on the auditors' behaviour than a mere limitation to the auditors' liability. Essentially, the applied model suffers, in this regard, with an omitted variable specification. Future research should therefore include estimates of the reputational risk, as this may provide new insight into how auditors decide on the amount of audit efforts needed during an audit. Furthermore, future research should also attempt to measure the likelihood of being litigated and convicted, as this probably will be a more accurate measurement of how litigation impacts the auditors' behaviour, as the measure will reflect the actual possible liability rather than the formal possible liability. It is important to consider the actual possible liability, as it will include a measurement of prior court rules and practices, which may reduce the auditors' liabilities to a level below any established limits. Consequently, future research should include these informal limitations to the auditors' liability to provide a more accurate measurement of the actual limitations.

A second limitation in the study lies in the applied proxy for enforcement of auditors (Brown et al. 2014). This proxy is based on measurements of the 'rule of the book' rather than on the applied rules. The rules of the book are not always applied to the actual enforcement, which is why a measurement measuring the actual enforcement is preferable. Future research should therefore be initiated to create a better

enforcement proxy of enforcement of auditors that measures not only the rules of the book but also the manner in which these rules are being applied by the regulatory authorities. Such a proxy will provide a better basis for examining how enforcement impacts the pricing of auditing services.

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Table 1 – Overview of sample selection and distribution

Panel A: Sample selection by country

Initial Sample (100 largest firms measured by capitalised value, end of 2014) from ThomsonOne	600
Subtract:	
Firms working in the financial sector (ICB 8000-8999)	-133
Firms listed but not listed in home country or in other sample country	-8
The financial report is not available in English	-26
Firm observations with a missing audit fee	-11
Firms excluded due to missing data other than an audit fee	-31
Final sample	391

Panel B: Cross-distribution of sample by industry and country

Country	Basic		Consumer		Consumer		Tele-	Utilities (ICB - 7000)	Technology (ICB - 9000)	Total
	Oil & gas (ICB - 0001)	Materials (ICB - 1000)	Industrials (ICB - 2000)	Goods (ICB - 3000)	Health Care (ICB - 4000)	Services (ICB - 5000)	communi- cations (ICB - 6000)			
Belgium	0	5	15	7	10	5	1	1	6	50
Denmark	3	1	19	12	14	7	1	1	3	61
Finland	1	4	24	9	3	7	1	1	12	62
France	1	4	18	16	6	14	2	6	7	74
Germany	0	11	19	16	8	9	4	6	3	76
United Kingdom	3	8	16	11	5	16	3	5	1	68
Total	8	33	111	71	46	58	12	20	32	391

Table 2 – Overview of variables – description and source

Variable	Description	Source
Panel A – Dependent variable		
AUDIT_FEE	Natural log of audit fee converted to thousands of Euros	Hand-collected from the 2014 financial statement
Panel B – Explanatory variables		
ENFOR_FIN	The strictness of a country's enforcement of financial reporting, measured by the ranked enforcement score of the Johansen et al (2018) enforcement index. This is true for each of the enforcement strategies, i.e., deterrence strategy, persuasion strategy and total enforcement (mix of deterrence and persuasion).	Johansen et al. (2018)
BROWN_AUD	The strictness of a country's enforcement of an auditor, measured by the Brown et al auditor	Brown et al. (2014)

Variable	Description	Source
	enforcement index, excluding the Wingate (item #9 in their index) and audit fee component (item #8 in their index) of the index.	
LIABILITY_CAP	Indicator variable measuring if there is a cap on the auditors' liability. 1 if liability is capped and 0 otherwise.	See appendix
Panel C – Control variables		
LNASSETS	Natural log of year-end assets in thousands of Euros.	Worldscope
BUS_SEG	Natural log of 1 plus the number of business segments.	Worldscope
GEO_SEG	Natural log of 1 plus the number of geographical segments.	Worldscope
INVREC	Natural log of the sum of inventories and receivables divided by total assets.	Calculated based on data from Worldscope
LEVERAGE	Ratio of total liabilities to total assets.	Calculated based on data from Worldscope
ROA	Return on Assets in 2014	Worldscope
US_LISTING	1 if the firm is listed in US and 0 otherwise	Worldscope
SECONDARY	1 if the firm has a secondary listing and 0 otherwise.	Worldscope
SEASONED	1 if the firm has obtained financing by issuing bonds or shares in 2014.	ThomsonOne
OIL&GAS	1 if the firm is working in the Oil & Gas industry (ICB code 0001-0999).	Worldscope
BASIC_MATERIAL	1 if the firm is working in the Basic Material industry (ICB code 1000-1999).	Worldscope
UTILITIES	1 if the firm is working in Utilities (ICB 7000-7999).	Worldscope

Variable	Description	Source
TELECOMMUNICATIONS	1 if the firm is working in Utilities (ICB 6000-6999).	Worldscope
NON_BIG4	0 if the firm is being audited by a Big 4 auditing firm and 1 otherwise.	Hand-collected from the 2014 financial statement
CHANGE	1 if the firm has changed auditors between 2013 and 2014 and 0 otherwise.	Hand-collected from the 2014 and 2013 financial statement
YEAR_END	1 if the firm has its year-end in the "busy season", which is defined as the period from the 31 st of December to the 28 th of February.	Worldscope

Table 3 – Descriptive statistics of variables

Panel A: Dependent variable - Audit fee

	n	Mean	Std Dev	Median	Minimum	Maximum
Dependent variable						
AUDIT_FEE (log of audit fee)	391	7,0116	1,6910	6,9783	3,1896	10,6805
<i>-By country</i>						
Belgium	50	5,9086	1,2645	5,9228	3,5553	9,3129
Denmark	61	5,5818	1,3853	5,4867	3,1896	9,4584
Finland	62	5,9266	1,3477	5,8415	3,2581	9,6024
France	74	8,5049	1,0684	8,7029	6,4425	10,4429
Germany	76	7,3818	1,3557	6,9533	5,1699	10,6805
United Kingdom	68	8,0558	1,1041	8,0317	5,5487	10,3141
AUDIT_FEE (in '000 EUR)	391	3.665	5.955	1.073	24	43.500
<i>-By country</i>						
Belgium	50	880	1.752	373	35	11.080
Denmark	61	778	1.790	241	24	12.815
Finland	62	937	1.971	345	26	14.800
France	74	8.074	7.722	6.021	628	34.300
Germany	76	4.241	7.088	1.047	176	43.500
United Kingdom	68	5.350	5.619	3.086	257	30.154
AUDIT_FEE divided by total assets	391	0,0007	0,0009	0,0004	0,0000	0,0108
<i>-By country</i>						
Belgium	50	0,0010	0,0016	0,0007	0,0001	0,0108
Denmark	61	0,0010	0,0009	0,0007	0,0001	0,0054
Finland	62	0,0010	0,0010	0,0007	0,0001	0,0050
France	74	0,0005	0,0003	0,0005	0,0000	0,0011
Germany	76	0,0003	0,0002	0,0002	0,0000	0,0012
United Kingdom	68	0,0004	0,0003	0,0004	0,0000	0,0015
Total assets (in '000 EUR)	391	15.236.911	35.787.424	3.286.050	5.000	345.331.000
<i>-By country</i>						
Belgium	50	3.715.823	16.453.127	526.930	10.110	117.013.880
Denmark	61	2.352.252	7.662.492	340.110	5.000	56.461.470
Finland	62	2.269.250	4.180.939	850.700	8.500	21.277.000
France	74	27.310.917	43.264.866	10.092.500	1.104.200	265.363.000
Germany	76	25.201.933	51.768.748	5.621.250	424.740	345.331.000
United Kingdom	68	22.813.316	37.568.230	8.223.690	1.323.500	233.285.780

(Continued)

(table 3 continued)

Panel B: Explanatory variables

Explanatory variables	BROWN_AUD (adjusted)	LIABILITY CAP (dichotomous)
Belgium	16	1
Denmark	18	0
Finland	14	0
France	20	0
Germany	14	1
United Kingdom	20	1
Country ID - (anonymous and randomised)		
Country ID - (anonymous and randomised)	ENFOR_TOT	
Country A	68	
Country B	67	
Country C	89	
Country D	68	
Country E	66	
Country F	55	

Panel C: Control variables

Control variables	n	Mean	Std Dev	Median	Minimum	Maximum
<i>Non-dichotomous</i>						
LNASSETS	391	14,7729	2,1835	15,0052	8,5172	19,6600
ASSETS in '000 EUR		15.236.911	35.787.424	3.286.050	5.000	345.331.000
BUS_SEG	391	1,3428	0,4303	1,3863	0,6931	2,3026
# of business segments		3,1893	1,7585	3,0000	1,0000	9,0000
GEO_SEG	391	1,5446	0,4987	1,6094	0,6931	2,3979
# of geographical segments		4,2609	2,4376	4,0000	1,0000	10,0000
INVREC	391	0,2791	0,1587	0,2732	0,0000	0,9041
LEVERAGE	391	0,5820	0,2188	0,5866	0,0071	2,5104
ROA	391	5,2993	11,4482	5,1500	-100,1000	60,5500
		(0)	(1)			
<i>Dichotomous</i>						
NON_BIG4	375	16				
US_LISTING	281	110				
SECONDARY	302	89				
SEASONED	299	92				
YEAR_END	330	61				
CHANGE	372	19				
OIL&GAS	385	6				
BASIC MATERIAL	358	33				
UTILITIES	374	17				
TELECOMMUNICATIONS	380	11				

Table 4 – Pearson correlations for the dependent and independent variables

Variable	AUDIT_FEE	ENFOR_TOT	BROWN_AUD	LIABILITY_CAP	IN_ASSETS	YEAR_END	BUS_SEG	GEO_SEG	INVREC	SEASONED
AUDIT_FEE	1.0000									
ENFOR_TOT	-0.4573 ***	1.0000								
BROWN_AUD	0.3678 ***	-0.1584 ***	1.0000							
LIABILITY_CAP	0.1332 ***	-0.5378 ***	-0.1686 ***	1.0000						
IN_ASSETS	0.9060 ***	-0.4738 ***	0.2894 ***	0.2324 ***	1.0000					
YEAR_END	0.0729 ***	-0.0921 **	0.1941 ***	0.1372 ***	0.0783 ***	1.0000				
BUS_SEG	0.4902 ***	-0.1581 ***	0.0265 ***	0.0784 ***	0.4700 ***	-0.0238 ***	1.0000			
GEO_SEG	0.4634 ***	-0.1540 ***	0.0427 ***	0.0317 ***	0.3843 ***	-0.0238 ***	0.3215 ***	1.0000		
INVREC	-0.1241 ***	0.0324 ***	-0.1666 ***	-0.0581 ***	-0.2207 ***	0.0092 ***	-0.0235 ***	0.1763 ***	1.0000	
SEASONED	0.2238 ***	-0.0380 ***	-0.0033 ***	0.0646 ***	0.2489 ***	-0.0059 ***	0.1680 ***	0.1140 ***	-0.1177 ***	1.0000
ROA	0.1523 ***	-0.0588 *	0.0534 ***	0.0346 ***	0.1965 ***	0.1306 ***	0.0694 ***	0.1539 ***	0.0706 ***	-0.0231 ***
NON_BIG4	-0.1529 ***	-0.0079 ***	-0.0445 ***	0.1307 ***	-0.1586 ***	-0.0532 ***	0.1854 ***	-0.1198 ***	-0.0220 ***	-0.0537 ***
US_LISTING	0.4726 ***	-0.2737 ***	0.2402 ***	0.2096 ***	0.4575 ***	0.0915 ***	0.2036 ***	-0.1938 ***	-0.0220 ***	0.0854 ***
SECONDARY	0.2571 ***	-0.0904 ***	-0.1695 ***	0.1811 ***	0.2749 ***	0.0019 ***	0.1641 ***	0.1777 ***	-0.0361 ***	0.1159 ***
LEVERAGE	0.2688 ***	-0.2171 ***	0.0395 ***	0.1354 ***	0.3238 ***	0.0237 ***	0.1569 ***	0.1023 ***	0.0207 ***	0.1169 ***
CHANGE	-0.0183 ***	-0.0268 ***	-0.0097 ***	-0.0102 ***	0.0018 ***	0.0240 ***	-0.0057 ***	-0.0076 ***	-0.0367 ***	-0.0432 ***
OIL&GAS	0.0723 ***	-0.1687 ***	0.1415 ***	0.1268 ***	0.1083 ***	0.1183 ***	-0.1108 ***	0.0098 ***	-0.0970 ***	-0.0702 ***
BASIC_MATERIAL	0.1395 ***	-0.4103 ***	0.3443 ***	0.3369 ***	0.1847 ***	0.1737 ***	-0.0023 ***	-0.0040 ***	0.0765 ***	-0.0600 ***
UTILITY	-0.1350 ***	-0.0107 ***	-0.0690 ***	0.2148 ***	-0.1970 ***	0.0017 ***	0.0317 ***	0.0141 ***	0.0639 ***	-0.0591 ***
TELECOM/MUNICATIONS	0.0820 ***	-0.2007 ***	-0.2007 ***	0.1715 ***	0.1328 ***	-0.0305 ***	0.0482 ***	0.0638 ***	0.0288 ***	0.0706 ***

*, **, *** indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively. (The table is continued below)

Table 4 (continued)

Variable	ROA	NON_BIG4	US_LISTING	SECONDARY	LEVERAGE	CHANGE	OIL&GAS	BASIC_MATERIAL	UTILITY	TELECOM/MUNICATIONS
ROA	1.0000									
NON_BIG4	-0.0774	1.0000								
US_LISTING	0.0065	-0.0718	1.0000							
SECONDARY	0.0914 *	-0.0198	0.2437 ***	1.0000						
LEVERAGE	-0.3011 ***	-0.1453 ***	0.1324 ***	0.0409	1.0000					
CHANGE	-0.0344	-0.0467	-0.0091	-0.0660	-0.0272	1.0000				
OIL&GAS	0.0777	-0.0258	0.1070 ***	-0.0182	0.0001	0.1653 ***	1.0000			
BASIC_MATERIAL	0.1278 **	-0.0163	0.2397 ***	-0.0990 *	0.0639	-0.0258 ***	-0.0379	1.0000		
UTILITY	-0.1023 **	0.2092 ***	-0.0497 ***	-0.0658 *	0.0055	-0.0482 ***	-0.0266	-0.0647	1.0000	
TELECOM/MUNICATIONS	-0.0168	-0.0339	0.0172	0.0024	0.0665	-0.0485 ***	-0.0803 ***	-0.1467 ***	-0.1831 *	1.0000

*, **, *** indicate statistical significance at 10 percent, 5 percent and 1 percent levels, respectively.

Table 5 – Analysis of regression results

Base model				
Total Enforcement (n=391)				
Independent variables	Expected direction	β	t	
Intercept		7,0784	121,26	***
<i>Explanatory variables</i>				
ENFOR_TOT	-	-0,0171	-4,59	***
BROWN_AUD	+	0,0925	6,12	***
LIABILITY_CAP	-	-0,2493	-3,03	***
<i>Control Variables</i>				
<i>Client characteristics</i>				
LNASSETS	+	0,5756	22,42	***
BUS_SEG	+	0,2543	3,02	***
GEO_SEG	+	0,3594	4,27	***
INVREC	+	0,5840	2,26	**
LEVERAGE	+	0,3519	2,03	**
ROA	-	-0,0021	-0,71	
US_LISTING	+	0,2354	3,01	***
SECONDARY	+	0,1375	1,82	*
SEASONED	+	0,0147	0,21	
OIL&GAS	?	-0,0464	-1,27	
BASIC MATERIAL	?	-0,3855	-2,53	**
UTILITIES	?	-0,0390	-0,17	
TELECOMMUNICATIONS	?	-0,1178	-0,79	
<i>Auditor characteristics</i>				
NON_BIG4	-	0,1061	0,45	
CHANGE	-	-0,0199	-0,15	
<i>Engagement characteristic</i>				
YEAR_END	-	-0,0104	-0,12	
<i>Adjusted R² and F – value</i>		0,8674	135,28	***
<i>Highest VIF on explanatory variables</i>			2,02	

*, **, *** denotes statistical significance at 10 percent, 5 percent, and 1 percent, respectively, using a two-tailed test.

Table 6 – Robustness tests

Independent variables	Model R1 Brown et al. (2014) (n=591)		Model R2 Wingate litigation index (n=591)		Model R3 Enforcement strategy = Deterrence (n=591)		Model R4 Enforcement strategy = Persuasion (n=591)		Model R5 Size = Log sales (n=588)		Model R6 Excluding FRANCE (n=517)		Model R7 Quantile regression (at median) (n=591)		Model R8 Including Non-auditing services (n=591)		
	β	t	β	t	β	t	β	t	β	t	β	t	β	t	β	t	
Expected direction	6.881	105.61 ***	7.021	117.99 ***	7.005	125.49 ***	6.954	120.33 ***	7.082	113.95 ***	6.984	72.37 ***	7.187	110.07 ***	7.1407	117.67 ***	
Intersect																	
ENFOR_TOT	-		-0.0310	-2.74 ***					-0.0224	-5.37 ***	-0.0145	-3.22 ***	-0.0180	-3.58 ***	-0.0154	-3.94 ***	
ENFOR_DET							-0.0282	-3.94 ***									
BROWN_AUD	+	0.1339	7.66 ***	0.0789	4.87 ***	0.1008	6.65 ***	0.1008	6.65 ***	0.1305	7.84 ***	0.0795	4.24 ***	0.0939	5.34 ***	0.0861	5.98 ***
LIABILITY_CAP	+	0.2325	2.18 **					-0.0195	-0.24	-0.1924	-2.24 **	-0.1668	-1.60	-0.2864	-2.87 ***	-0.2190	-2.65 ***
WINGATE	+			0.0737	2.90 ***	-0.0921	-1.20										
BROWN_FIN	-	-0.0532	-4.66 ***														
Control variables																	
Client characteristics (select)																	
UNSALES	+	0.5766	22.64 ***	0.6124	22.78 ***	0.5701	19.47 ***	0.5918	23.96 ***	0.5382	18.60 ***	0.5603	18.41 ***	0.6887	23.09 ***	0.5755	23.50 ***
MS_LOWER_AUDIT_FEE	+							0.3515	2.06 ***	0.3104	3.15 ***	0.2129	2.44 **	0.1347	1.37	-0.1176	-2.13 **
ROA	+	0.3548	3.03 ***	0.3118	2.36 **	0.3524	2.96 ***	0.3510	4.16 ***	0.3900	3.95 ***	0.3684	3.91 ***	0.3084	3.72 ***	0.3518	4.33 ***
GEO_SEG	+	0.3577	4.35 ***	0.3776	4.34 ***	0.3789	4.48 ***	0.3500	4.16 ***	0.3900	3.95 ***	0.3684	3.91 ***	0.3084	3.72 ***	0.3518	4.33 ***
INVPIC	+	0.5853	2.27 ***	0.6084	2.32 ***	0.6397	2.52 ***	0.6560	2.36 **	-0.6500	-3.09 ***	0.5021	1.86	0.8077	3.60 ***	0.5193	2.03 **
LEVBRAGE	+	0.3475	2.01 **	0.3386	1.79 *	0.4188	2.41 **	0.3461	1.99 **	0.1218	0.74	0.3921	2.10 **	0.3269	1.78 *	0.3147	1.99 **
ROA	-	-0.0020	-0.67	-0.0031	-1.06	-0.0018	-0.63	-0.0017	-0.58	-0.0080	-2.19 **	-0.0022	-0.71	-0.0041	-1.16	-0.0018	-0.62
US_LISTING	+	0.2396	3.07 ***	0.2321	2.62 ***	0.2504	3.06 ***	0.2428	3.10 ***	0.3524	3.77 ***	0.2312	2.41 **	0.2197	2.32 **	0.2440	3.08 ***
SECONDARY	+	0.1419	1.88 *	-0.0171	-0.21	0.0836	1.08	0.1607	2.15 **	0.1882	2.47 **	0.1692	1.83 *	0.0844	0.86	0.1159	1.58
SEASONED	+	0.0141	0.20	-0.0236	-0.31	0.0011	0.02	0.0078	0.11	0.0877	1.21	0.0560	0.32	-0.0407	-0.46	0.0285	0.41
OLIGAS	?	-0.4491	-1.23	-0.4630	-1.23	-0.3342	-0.87	-0.4036	-1.12	-0.4509	-1.07	-0.3678	-0.98	-0.2540	-0.82	-0.4569	-1.26
BASIC_MATERIAL	?	-0.3675	-2.43 **	-0.3723	-2.31 **	-0.2442	-1.65 *	-0.3050	-2.02	-0.5215	-3.39 ***	-0.2879	-1.74 *	-0.3766	-2.33 **	-0.3817	-2.51 **
UTILITIES	?	-0.0318	-0.14	-0.4282	-1.90 *	-0.1529	-0.67	-0.0149	-0.07	-0.0370	-0.16	-0.0629	-0.27	0.0746	0.33	-0.0651	-0.29
TELECOMMUNICATIONS	?	-0.4451	-0.98	-0.2551	-1.70 *	-0.0489	-0.26	-0.2405	-1.61	-0.0664	-0.25	-0.1935	-0.86	-0.1723	-0.91	-0.0887	-0.69
Auditor characteristics																	
NON_BIG4	-	0.0970	0.41	0.0732	0.50	0.1217	0.50	0.0507	0.34	0.0882	0.04	0.0674	0.24	0.0324	0.07	0.1225	0.53
CHANGE	-	-0.0174	-0.13	-0.0703	-0.28	-0.0021	-0.02	-0.0111	-0.08	0.0420	0.26	-0.0046	-0.03	-0.1712	-1.02	-0.0887	-0.37
Engagement characteristic																	
AL_END	-	-0.0556	-0.06	-0.0238	-0.29	-0.0394	-0.45	0.0340	0.04	-0.0900	-0.96	-0.0038	-0.06	0.0655	0.62	-0.0391	-0.22
FRANCE	?																
Adjusted R ² and F – value		0.8675	135.39 ***	0.8471	128.11 ***	0.8647	132.21 ***	0.8663	134.06 ***	0.8587	124.75 ***	0.8473	93.30 ***	0.8316	89.36 ***	0.8705	132.09 ***
Highest VIF on explanatory variables		3.65	2.54	2.28	2.28	1.83	1.83	1.83	1.97	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.63

*, **, *** denotes statistical significance at 10 percent, 5 percent, and 1 percent, respectively, using two-tailed test.

Appendix – Overview of limitations in the auditors' liability

Country	Cap on liability	Cap	Basis and method	Comments	Source
Belgium	Yes	EUR 12 million for listed firms and EUR 3 million for unlisted firms	The cap is calculated per mandate.	The cap is waived in case of fraud or intentional conduct	Commission (2007)
Denmark	No	n/a	n/a	The auditor only becomes liable if the audit is not conducted in compliance with GAAS. Damages are based on a joint and several liability principle	Commission (2007),
Finland	No	n/a	n/a	The auditor may become liable if the damage is due to the auditor's fault or negligence caused by the auditor. Awarded damages are based on the proportionate liability principle.	Commission (2007), Finlex (2007, 2015)
France	No	n/a	n/a	The auditor may become liable if the damage is due to the auditor's fault or negligence and causality between fault and damage can be proven. Damages are awarded based on the proportionate liability principle.	Commission (2007)
Germany	Yes	EUR 4 million for listed firms and EUR 1 million for unlisted firms	The cap is per audit/group audit.	The cap is only applicable to international conduct. The rule has been active since 1930, and the amount was adjusted in 2002.	Commission (2007)
United Kingdom	Yes	Limited Liability Agreements (LLA) can be signed.	Depends on LLA	The contractual liability must be viewed as fair and reasonable. The auditors are only held liable if they have not performed the audit in accordance with relevant legislation and GAAS.	Commission (2007), ACCA (2017)

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