Voluntary Interim Auditor Reviews and the Enforcement System in Germany

INAUGURALDISSERTATION

zur Erlangung des akademischen Grades

eines Doktors der Wirtschaftswissenschaften an der

wirtschaftswissenschaftlichen Fakultät

der Julius-Maximilians-Universität Würzburg

Vorgelegt von

Balthasar Höhn

Würzburg, im Oktober 2013

Voluntary Interim Auditor Reviews and the Enforcement System in Germany

INAUGURALDISSERTATION

zur Erlangung des akademischen Grades
eines Doktors der Wirtschaftswissenschaften an der
wirtschaftswissenschaftlichen Fakultät
der Julius-Maximilians-Universität Würzburg

Vorgelegt von

Balthasar Höhn

Würzburg, im Oktober 2013

Danksagung

Erklärung

Ich erkläre, dass ich die Arbeit selbständig verfasst, keine anderen als die angegebenen Quellen und Hilfsmittel benutzt, die diesen Quellen und Hilfsmitteln wörtlich oder sinngemäß entnommenen Ausführungen als solche kenntlich gemacht habe und die Arbeit bisher noch keiner anderen Prüfungsbehörde vorgelegt wurde.

Würzburg, den 30. Oktober 2013

Zusammenfassung

Diese Dissertation behandelt das Thema der Finanzberichterstattung und Wirtschaftsprüfung. In einer allgemeinen Einleitung werden die gesetzlichen Grundlagen zur kapitalmarktorientierten Rechnungslegung und deren Kontrollen beschrieben. Als Folge des Bilanzkontrollgesetzes (BilKoG) wurde die Deutsche Prüfstelle für Rechnungslegung (DPR) gegründet. Diese privatrechtlich organisierte Kontrollinstanz prüft seit 2005 die Rechnungslegung von Unternehmen, die am regulierten Markt in Deutschland vertreten sind (Enforcement). Ziel ist es, eine wahrhafte und transparente Rechnungslegung im Interesse des Kapitalmarkts zu gewährleisten. Neben dem BilKoG wurde durch das am 20.01.2007 in Kraft getretene Transparenzrichtlinie-Umsetzungsgesetz (TUG) die Richtlinie 2004/109/EG in deutsches Recht transformiert. Ziel der EU-Transparenzrichtlinie war 'die Schaffung effizienter, integrierter und transparenter Wertpapiermärkte, die Anleger und Kapitalgeber besser über die Finanzlage kapitalmarktorientierter Unternehmen informieren' (Henkel et al. (2008), S. 36). In der vorliegenden Arbeit werden in drei Studien spezielle Fragestellungen ausgehend von der gesetzlichen Entwicklung in Deutschland analysiert. Es werden die Zusammenhänge zwischen freiwilligen Kontrollen eines Wirtschaftsprüfers, staatlichem Enforcement, Prüfungskosten und Bilanzpolitik untersucht.

Die erste Studie befasst sich mit der freiwilligen Kontrolle der Zwischenberichterstattung kapitalmarktorientierter Unternehmen. Die unterjährige Veröffentlichung von Zwischenberichten bietet entscheidungsrelevante und zeitnahe Informationen für Kapitalmarktakteure. Eine prüferische Durchsicht durch einen Wirtschaftsprüfer kann zusätzliches Vertrauen in die Berichterstattung liefern. Bei der Implementierung des TUG wurde eine pflichtmäßige prüferische Durchsicht von Zwischenberichten in Deutschland diskutiert. Der Gesetzgeber entschied sich gegen eine

gesetzliche Verpflichtung und übertrug die Entscheidung einer freiwilligen unterjährigen Kontrolle an Unternehmen und Wirtschaftsprüfer. Dieser Marktlösung in Deutschland steht eine gesetzlich verpflichtete prüferische Durchsicht z.B. in den USA, Frankreich oder Australien gegenüber. Es stellt sich folglich die Frage nach Kosten und Nutzen einer solchen Kontrollleistung, um die Vorteilhaftigkeit der gesetzlichen Pflicht oder der Marktlösung zu bewerten. Diese erste Studie nutzt ausgehend vom TUG einen neu entstandenen, beobachtbaren Markt für prüferische Durchsichten in Deutschland. Die Kategorisierung der Prüfungskosten in ‚Abschlussprüfungskosten' und ‚Prüfungsnahen Dienstleistungen' ermöglicht eine detaillierte Untersuchung der Kosten für das Unternehmen. Weiter wird der Nutzen in Bezug auf die Qualität der unterjährigen Berichterstattung analysiert.

In der zweiten Studie wird das Angebot und die Nachfrage von prüferischen Durchsichten beleuchtet. In der Literatur werden die Agency-Kosten, die Corporate Governance Struktur und verschiedene Kostentreiber dieser Prüfungsleistung als Einflussfaktoren identifiziert. Der positive Nachfrageschock bei prüferischen Durchsichten im Jahr 2007 lässt sich durch diese Faktoren jedoch nicht erklären. Ausgehend von der neu beobachtbaren Nachfrage stellt die Studie einen Zusammenhang zwischen dem erstmaligen Enforcement von Zwischenberichten durch die DPR und dem Inkrafttretens des TUG im Jahr 2007 her. Die gesetzlichen Änderungen werden dem theoretischen Rahmen von Angebot und Nachfrage freiwilliger externer Kontrollen zugeordnet. Im nächsten Schritt wird der Einfluss von Fehlerentdeckungsrisiken durch die DPR für Management und Aufsichtsrat auf die Nachfrage von externen Kontrollen untersucht.

Die dritte Studie befasst sich mit der Effektivität des deutschen Enforcement-Systems, dem Einfluss von Bilanzpolitik und dessen Antizipation in den Prüfungskosten. Die Untersuchung analysiert den zeitlichen Aspekt von Bilanzpolitik auf Fehlerveröffentlichungen in späteren Perioden. Es besteht die Möglichkeit die

Verschlechterung der wirtschaftlichen Situation eines Unternehmens durch Bilanzpolitik zu verdecken. Ohne Verbesserung der wirtschaftlichen Lage des Unternehmens führt dieses Verhalten zu einem Bilanzpolitikausmaß außerhalb des gesetzlichen Rahmens und folglich zu einer hohen Wahrscheinlichkeit der Fehlerentdeckung bei DPR Untersuchungen. Die Entwicklung der Bilanzpolitik eines solchen Unternehmens müsste im zweiten Schritt mit der Risikokomponente in den Prüfungskosten des Wirtschaftsprüfers in Verbindung stehen. Der risikoorientierte Prüfungsansatz und die Antizipation von Bilanzpolitik in den Prüfungskosten sollte demnach vor Fehlerbekanntmachung zu einem Anstieg der Prüfungskosten führen. Zusätzlich ist nach offizieller Fehlerveröffentlichung und somit durch eine objektiv beobachtbare Schwäche im Rechnungslegungssystem oder einem hohen Ausmaß an Bilanzpolitik ein Risikoaufschlag zu vermuten.

Der letzte Abschnitt fasst die wichtigsten Aussagen der Dissertation zusammen und erläutert die Zusammenhänge der Ergebnisse.

Content Overview

List of Contents

List of Tables

List of Figures

List of Abbreviations

AAER: ....Accounting and Auditing Enforcement Release

AktG: ....Aktiengesetz - Public Companies Act

APAG: ....Abschlussprüferaufsichtsgesetz - Auditor Oversight Law

APAK: ....Abschlussprüferaufsichtskommission - Auditor Oversight Commission

BaFin: ....Bundesanstalt für Finanzdienstleistungsaufsicht - Federal Financial
Supervisory Authority

BilKoG: ....Bilanzkontrollgesetz - Financial Reporting Enforcement Act ,

BilReG: ....Bilanzrechtsreformgesetz - Accounting Law Reform Act

BörsG: ....Börsengesetz - Stock Exchange Law

BörsO: ....Börsenordnung - Exchange Rulings

BörsZulV: ....Börsenzulassungs-Verordnung - Listing Application Decree

DM: ....Deutsche Mark

DPR: ....Deutsche Prüfstelle für Rechnungslegung - Financial Reporting
Enforcement Panel

DRS: ....Deutscher Rechnungslegungs Standard - German Accounting Standard

EC: ....European Commission

ER: ....Enforcement Release

EU: ....European Union

FREP: ....Financial Reporting Enforcement Panel

FWB: ....Frankfurter Wertpapierbörse - Frankfurt Stock Exchange

GAAP: ....General Accepted Accounting Principles

GAS: ....German Accounting Standards

GCGC: ....German Corporate Governance Codex

HFA: ....Hauptfachausschuss - Main Technical Committee

HGB: ....Handelsgesetzbuch - German Commercial Code

HGrG: ....Haushaltsgrundsätzegesetz - Law on Budgetary Principles

IAS: ....International Accounting Standards

IASC: ....International Accounting Standard Committee

IDW: ....Institut deutscher Wirtschaftsprüfer - German Institute of Auditors

IFRS: ....International Financial Reporting Standards

ISRE: ....International Standard on Review

KonTraG: ....Gesetz zur Kontrolle und Transparenz im Unternehmensbereich - Law

for Control and Transparency

NYSE: ....New York Stock Exchange

PS: ....Prüfungsstandard - Standard on Auditing

RS: ....Stellungnahmen zur Rechnungslegung - Comments on Accounting

SEC: ....Security and Exchange Commission

SOX: ....Sarbanes-Oxley Act

TDIA: ....Transparency Directive Implementing Act

TransPuG: ....Transparenz- und Publizitätsgesetz - Transparency and Disclosure Act

TUG: ....Transparenzrichtlinie-Umsetzungsgesetz - Transparency Directive

Implementing Act

UmwG: ....Umwandelungsgesetz - Transformation Act

VIF: ....Variation Inflation Factor

WpHG: ....Wertpapierhandelsgesetz - Securities Trading Act

WPK: ....Wirtschaftsprüferkammer - Chamber of Auditors

1   Introduction

Agency theory is the main theoretical framework for investigating the publication of financial information, its audit and the enforcement system. At its core is the knowledge that adverse selection is introduced by information asymmetry between market participants. This is revealed by a reduced level of liquidity in the stock market. Uninformed investors are afraid of trading with privately informed market participants. As a consequence these 'uninformed' investors want to receive a discount and lower the price they are willing to pay for a financial instrument. This price protection reflects the likelihood of trading with informed market participants. As a consequence of information asymmetry, market liquidity is reduced and bid-ask spread is increased (Leuz and Wysocki, 2008). Corporate disclosure and independent audits can be an appropriate method to mitigate these problems. Following Levitt (1998, p. 81), high quality corporate disclosure 'results in greater investor confidence, which improves liquidity, reduces capital costs, and makes fair market prices possible.' In other words, high quality accounting information 'enables all investors to have access to robust financial information about public companies' (Sutton (1997), p. 100) and 'level[s] the playing field among market participants' (Verrecchia (2001), p. 171).

The amount of mandatorily provided financial information was expanded over time, with no sign of abatement. Following Schipper (2007, p. 301) 'despite their abundance, required disclosures are not well understood: we lack a comprehensive theory of mandatory disclosures;' Schipper (2007) mentions that theories of voluntary disclosure

are abundant, partly because they operate at the level of the individual firm or manager, where it is possible to posit a reasonably well-specified and defensible objective function. A theory of voluntary disclosure might have the objective of maximizing firm value or manager utility. The rationale behind regulators imposing mandatory disclosure and audits is that companies have insufficient private incentives to voluntarily provide financial information (Lennox and Pittman, 2011). Required disclosures are economy-level policy choices, affecting multiple firms that differ in terms of economic circumstances and contracting arrangements and parties (Leuz and Wysocki, 2008). Following Lennox and Pittman (2011), whom argue that private and social values of information can diverge, regulation is often justified on the grounds that this induces positive externalities (Dye, 1990). On the other hand, other theory implies that, rather than maximizing social welfare, mandatory disclosure rules of accounting information can generate negative externalities (Fishman and Hagerty, 1989). In light of these different views of the literature, accounting research has been unable or unwilling to posit a social welfare function that should be maximized by standard setters that establish requirements for disclosures and audit services (Schipper, 2007).

Despite no or only an insufficient theoretical framework, the requirements of financial disclosure and audits increased over the last decades. Using the German legal environment for the following study – a typical code law country – we observed a progression from a bank-based system to a developed capital market since the 1990s (Vitols, 2005). Traditionally, so-called universal banks influenced firms via seats on the board of directors (supervisory board) of international German companies. The German corporate landscape was characterized by a concentrated ownership structure, which is typical for a capital structure of firms with comparatively more debt than equity financing (La Porta et al., 1997). The companies did not have to rely on the equity market, other than in a minor way. Furthermore 'the pervasive principle of prudence, or conservatism, was an unquestioned tenet' (Zeff (2012), p. 817). With respect to the capital market, German GAAP did not provide sufficient reliable financial information. For instance the today's Daimler AG was cross-listed at the New York Stock Exchange (NYSE) in 1993. The published result in this period according to German accounting standards amounted to earnings of DM0.6 billion being converted to a DM1.8 billion loss in the financial statement following US GAAP. Daimler had been taken down so-called 'silent reserves'

in the German GAAP statement (Berger (2010), p. 16). Starting from these legal and economic conditions, necessary developments were occurring on the European continent. These changes in Europe and especially in Germany moved the continent more towards acknowledging the necessity for accounting rules attuned to the needs of investors and other capital market participants. For example, Deutsche Telekom AG scheduled an initial public offering of its equity securities for 1996. The US$13 billion initial public offering was the largest ever in Europe. When it was carried out in November 1996, around two million purchasers were German households. To the surprise of many in the financial sector, a market for equity was found to exist in Germany (Zeff, 2012). The German government and European Commission were following these developments, and it soon 'warmed to IASC standards' (Zeff (2012), p. 818) as a possible alternative to the Company Law Directives on accounting. As a consequence, various legal rules were introduced.

1.1   Legal Developments

The first change in German accounting principles since 1985 was implemented by the Law for Control and Transparency (Gesetz zur Kontrolle und Transparenz im Unternehmensbereich – KonTraG) for fiscal years beginning after December 31, 1998 (Gassen and Skaife, 2009). The goal of this introduction was to improve internal control structures and to increase transparency of firms. The most important changes due to KonTraG were the implementation of an internal risk monitoring system, a more risk oriented approach for audits and an increase in legal liabilities of auditors (Duecker, 2009). This first implementation was followed by various changes in the German legal environment with respect to financial reporting, auditing and corporate governance.

The German Government Commission appointed by the Justice Minister in September 2001 set up the German Corporate Governance Code (GCGC) in February, 2002. The GCGC 'aims at making the German Corporate Governance system transparent and understandable. Its purpose is to promote the trust of international and national investors, customers, employees and the general public in the management and

supervision of listed German stock corporations' (GCGC (2002), No. 1). It covered issues of corporate finance, accounting, monitoring, and disclosure, and addressed various aspects of governance mechanisms. It provides various recommendations and its legitimacy is introduced in German law by the Transparency and Disclosure Act (Transparenz- und Publizitätsgesetz – TransPuG). For example, the GCGC recommended for the first time in 2002 the formation of an audit committee, which 'handles issues of accounting and risk management, the necessary independence required of the auditor, the issuing of the audit mandate to the auditor, the determination of auditing focal points and the fee agreement' (GCGC (2002), No. 5.3.2). In the U.S., audit committees have been mandatory for companies listed on the New York Stock Exchange since 1978, and as a consequences of the Sarbanes-Oxley Act (SOX) of 2002 this requirement is extended to all U.S. stock exchanges in 2003 (Köhler, 2005).

Since 2005 the so called IAS-Regulation (International Accounting Standard Regulation (EC) No.1606/2002) introduced the International Financial Reporting Standards (IFRS) mandatorily for consolidated financial statements of listed firms in Europe. It aims to improve the comparability and quality of financial statements of publicly traded entities across the European Union 'in order to ensure a high degree of transparency and hence an efficient functioning of the Community capital market' (IAS-Regulation, Article 1; for a review see Böcking et al. (2012); Gassen and Sellhorn (2006); Soderstrom and Sun (2007)). A main part of the introduced 'Ten-point program by the German government for fostering the integrity of firms and the protection of investors' (10-Punkte-Programm der Bundesregierung zur Verbesserung des Anlegerschutzes und der Unternehmensintegrität) was the Accounting Law Reform Act (BilReG – Bilanzrechtsreformgesetz), which came into force on January 1st, 2005. It was the legal basis for the transformation of the IAS-Regulation into German law and modified the independence rules of the auditor, e.g. audit partner rotation within the audit firm every seven years, the restriction of non-audit services and the mandatory disclosure of fees paid to the statutory auditor.

According to Hope (2003, p. 238) 'if nobody takes action when rules are breached, the rules remain requirements only on paper'. The 'IAS-Regulation' improved the control structure and required all EU Member States to install effective mechanisms for the enforcement of IFRS. The Financial Reporting Enforcement Act (BilKoG –

Bilanzkontrollgesetz) created the legal basis for external financial reporting enforcement in Germany. The German enforcement system is designed with a two-tiered structure, with the Financial Reporting Enforcement Panel (FREP; DPR – Deutsche Prüfstelle für Rechnungslegung) as a privately organized agency at the first tier and the Federal Financial Supervisory Authority (BaFin – Bundesanstalt für Finanzdienstleistungsaufsicht) at the second. Companies are not mandated to cooperate with the FREP. However, if a firm refuses to participate in a FREP investigation, the second tier takes over the investigation. The FREP started its enforcement activities on July, 2005. The FREP investigation sample is selected by random-based and risk-based techniques. The investigation subject is the annual and semi-annual financial statements of listed firms in Germany. Its investigations are given authority through an adverse disclosure mechanism in case errors are found and the capital market reacts (the 'name and shame' mechanism; Hitz et al. (2012), p. 253). A further implementation by the German government to improve enforcement was the Auditor Oversight Law (APAG – Abschlussprüferaufsichtsgesetz). The law established the Auditor Oversight Commission (APAK – Abschlussprüferaufsichtskommission), a private board that is responsible for the introduction of international standards on auditing and the quality assurance of the auditors. The APAK has information and inspection rights for publicly traded companies and cooperates with public oversight authorities within and outside the EU. Overall, these new enforcement mechanisms seek to establish incentives for companies to comply with the accounting guidelines and improve accounting quality.

In 2007, the Transparency Directive Implementing Act (TDIA; TUG – Transparenzrichtlinie-Umsetzungsgesetz) implemented the Directive 2004/109/EC of the European Parliament on the harmonization of transparency requirements in relation to information about issuers whose securities are traded on a regulated market. The directive increased the level of disclosure and control for listed German firms for interim and annual reports of financial years beginning after December 31st, 2006 and enhanced the Corporate Governance structure in Germany. In general, Parliament and Council believe: 'Efficient, transparent and integrated securities markets contribute to a genuine single market in the Community and foster growth and job creation by better allocation of capital and by reducing costs. The disclosure of accurate, comprehensive and timely information about security issuers builds sustained investor confidence and allows an

informed assessment of their business performance and assets. This enhances both investor protection and market efficiency' (Reason No. 1, Directive 2004/109/EC). From this overview it can be quickly seen that legal circumstances influenced the level of mandatory disclosure, its external audit services and the enforcement system since 1998.

1.2 Research Questions

In spite of no sufficient economic theory behind this tremendous increase in financial reporting and the control environment over the last years, standard setters are of the opinion that it has beneficially contributed to the economic welfare. Also in scientific research, a growing body of evidence mentions that countries' 'legal institutions are important determinants of financial market development, firms' capital and ownership structures, dividend policies, and insiders' private control benefits' (Leuz and Wysocki (2008), p. 58). Various empirical studies examine the link between countries' institutional features and accounting quality as well as the market reactions of these outcomes (La Porta et al. (1997, 2000)). In addition to the impact of the disclosure level, empirical studies analyze the control environment, e.g. the audit and enforcement structure, and its relation to market efficiency. Following Barton and Waymire (2004) external audits can be an adequate mechanism available to the governments provide reliable financial information to investors. In countries with a mandatory audit rule, academic research addresses the question of differences in audit quality, e.g. Big4-auditor vs. Non-Big4-auditor (Lawrence et al., 2011). In contemplating a market solution for audit services, the literature investigates the signal of such services for the addressees of the financial information (Lennox and Pittman, 2011). Francis et al. (2003) investigate the effect of audit infrastructures on reporting quality in different legal environments. They find higher reporting quality in countries with relatively high developed auditing professions and enforcement systems. Leuz et al. (2003) find that investor protection laws and the enforcement system are important factors of high quality accounting outcomes.

On the other hand, Leuz and Wysocki (2008, p. 72) discuss the relation of existing agency problems and its seemingly innocuous regulation, which can lead to

'surprisingly undesirable outcomes'. They refer to Coates (2007), which discusses the costs and benefits of SOX in the U.S. The introduction of legal changes has interacted with the litigation risk of the auditors and the outside directors. SOX created new incentives for firms to invest money on internal controls. Yet, these parties are motivated to over-invest in internal controls and SOX compliance that makes the Public Company Accounting Reform and Investor Protection Act of 2002 much more expensive than expected. According to Leuz and Wysocki (2008, p. 72) 'this notion can be viewed as a manifestation of the theory of the second best' by Lipsey and Lancaster (1956).

The development of the legal system in Germany over the last decades offers a wide range of research opportunities. The increased mandatory disclosure of financial information, the restructuring and extension of audit services and the implemented enforcement system can be used to provide further evidence of influences of regulation on reporting quality. To the best of my knowledge, there are only a few investigations for the German market addressing the influence of the various legal changes. Brown et al. (2012), Duecker (2009) and Gassen and Skaife (2009) evaluate the impact of the KonTraG from 1998. They find that the legal change has increased the frequency of qualified audit opinions, the number of auditor lawsuits, and earnings quality. Ernstberger and Vogler (2008), Gassen and Sellhorn (2006) and Leuz and Verrecchia (2000) investigate German firms that voluntarily adopt international accounting standards before the mandatory IFRS introduction (BilReG) in 2005. They show that switching to international accounting principles lowers the bid-ask spread and increases the trading volume relative to German GAAP firms. This provides empirical evidence of a positive market efficiency effect by introducing the mandatory IFRS-rule. The Financial Reporting Enforcement Act has drawn the attention of various researchers. The reason for erroneous IFRS financial statements, the efficiency of the two-tier enforcement system and the economic consequences are topics since the FREP took up its task in 2005. Ernstberger et al. (2012a) find that the existence of opportunistic motives is conducive to erroneous accounting. Ernstberger et al. (2012b) also show – in line with the goal of these reforms – that earnings quality improved. They conclude 'that the enforcement reforms in Germany have leveled the playing field in the enforcement of financial reporting' (Ernstberger (2012b), p. 217)

These empirical findings provide various aspects of market improvements in Germany since 1998. The following studies in this dissertation seek to add additional evidence on the influence of different legal changes in Germany. The focus lies on the Transparency Directive Implementing Act and the Accounting Enforcement Act. The interaction between external audit services, the enforcement system implementation and earnings quality build the framework for the research questions. Despite the importance of financial information, the evidence on the costs and benefits of voluntary audit or review services and the impact of the enforcement structure is limited. This dissertation contains three studies analyzing different aspects of these relations.

In Chapter 2 – 'The Effects of Voluntary Interim Auditor Reviews on Audit Fees and Earnings Quality' – I focus on the TDIA, which introduced new rules with respect to voluntary auditor reviews of interim reports. Due to the material legal changes in 2007 the review market in Germany flourished. I use a unique dataset to provide empirical evidence on the cost and benefits of voluntary interim auditor reviews. The German legal environment makes it possible to split the cost behavior of a review in the review price effect (included in audit-related fees) and a possible reduction of audit fees resulting from an improved year-around audit process. I observe a significant increase in audit and audit-related fees and provide evidence of declining audit fees for reviewed firms as compared to a matched sample of non-reviewed firms. An effect of an interim review on the quarterly earnings quality of interim financial statements is not observable.

Chapter 3 – 'The Effects of the Error Announcement Risk on the Demand for Voluntary Interim Auditor Reviews' – analyzes the demand (and supply) drivers of voluntary auditor reviews and the influence of the legal environment, i.e. the enforcement system and its error announcement risk effect. The increasing demand and supply of voluntary semi-annual reviews from 2006 to 2007 addresses the question whether the enforcement structure and the resulting error announcement risk exposure have an influence on voluntary external audit services. After controlling for agency costs, the corporate governance structure, and selected review cost factors, results of a logistic regression analysis show a positive influence of the error announcement risk on the likelihood of engaging an auditor for a semi-annual review.

In Chapter 4 – 'The Effects of Earnings Management on Enforcement Releases and their Recognition in Audit Fees' – we test the efficiency of the enforcement system

and its effect on the cost of the private audit sector. The German Enforcement Panel took up its task in 2005. These announcements of errors in financial statements of German firms are used to evaluate the consequences of increasing earnings management over time on enforcement releases and the recognition in audit fees. We provide evidence of a link between the phenomenon called 'balance sheet bloat' by Ettredge et al. (2010), the recognition of future information content in audit fees by Stanley (2011) and the incorporation of audit risks in fees charged by Simunic and Stein (1996). We find significant predictive power of accrual measures for enforcement releases in the period prior to and including the misstatement period. An audit fee increase in this time period is also observable, e.g. the recognition of increased audit risk even before the FREP took up its task.

The last part discusses the major findings and contributions of this dissertation. The chapter presents the results and concluding remarks of the essays.

2 The Effects of Voluntary Interim Auditor Reviews on Audit Fees and Earnings Quality

Abstract

The interim reporting process provides decision-useful information to investors and market participants. However the legal circumstances of external interim auditor reviews differ worldwide. A mandatory review rule in the US as opposed to a contrary decision of the German legislator raises the question of the cost-benefit-relation of auditor reviews. Using a German sample of 1,023 firm-year observations from 2007 to 2010, I extract the costs and the benefits of voluntary semi-annual reviews. The unique German legal environment makes it possible to split the cost effect of a review in the price effect (included in audit-related fees) and a possible reduction of audit fees resulting from an improved year-around audit process. I observe a significant increase of audit and audit-related fees of around 14.5% (total fee effect). Additionally, the study provides evidence on declining audit fees for reviewed firms as compared to a matched sample of non-reviewed firms. The effect of an interim review on quarterly earnings quality – using discretionary accruals as an earning management proxy – shows no significant influence.

JEL classification: M 40

Keywords: audit fees, interim review, earnings quality, interim financial statements

2.1   Introduction

The different legal systems worldwide vote in favor or against mandatory auditor reviews of interim financial statements. For example, legislators in Australia, France and the U.S. opted in favor of mandatory quarterly reviews instead of the legal systems in Canada, the U.K. and Germany that opted for voluntary quarterly reviews of publicly traded companies. This heterogenic legal situation with respect to the involvement of an external auditor raises the question of whether a mandatory interim review rule can improve the year-around financial reporting process and enhance the information supply for the addressees of (interim) financial statement. Besides the possible benefits, the costs of interim review services must be evaluated to get a better understanding of a mandatory review rule.

The German legal environment offers the opportunity to provide additional evidence on the costs and benefits of interim reviews. An EU-Transparency Directive implemented in German law in 2007 opened the market for semi-annual auditor reviews of interim financial reports. Before the financial year 2007, a voluntary review of interim reports in Germany was a very rare event. Based on a sample of 1,260 firm-year observations, voluntary semi-annual reviews increased from 0.8% to 16.7% between the years 2006 and 2010. The review costs for these services are classified as 'audit-related fees', which provide a unique dataset to shed light on the cost-benefit-effects of a review decision on the year-round reporting process. This classification as 'audit-related fees' provides the opportunity to measure the effect of interim auditor reviews on year-end 'audit fees'.

The existing literature investigates the decision for or against a voluntary (timely) review. Demand for voluntary reviews is driven by a desire to mitigate information asymmetry (Ettredge et al., 1994) and the quality of the corporate governance system (Mangena and Tauringana, 2008). However, there are only a few studies addressing the costs and benefits of this decision. Bédard and Courteau (2010) provide anecdotal evidence of interim reviews on review costs. For a Canadian sample, they observe an increase of 19% of audit fees for reviewed firms. A possible influence of interim review services on the year-end audit fees is stated in the literature (Ettredge et al. 1994), but not investigated yet. To my knowledge, I will be the first to provide evidence on the relation between interim auditor involvement and year-end audit fees. On the

benefits side, Bandyopadhyay et al. (2007) and Bédard and Courteau (2010) provide (weak) mixed evidence of interim reviews on quarterly earnings quality. I will provide additional results on this topic and evaluate if the benefit of an interim review has an observable earnings quality effect.

Using a sample of 1,023 firm-year observations from 2007 to 2010 of firms listed at the Frankfurt Stock Exchange, I test the relation between a review decision and its effect on audit and/or audit-related fees. Using a multivariate regression model with two-way clustered robust standard errors (see Petersen 2009) the results show that the magnitude of audit and audit-related fees is on average 14.5% higher for reviewed firms in comparison to a non-reviewed sample. After controlling for (i) possible self-selection bias by applying propensity score matching, (ii) the nonlinearity between audit quality demand and size or (iii) the corporate governance quality, this result varies from 5.7% to 21.5%. Therefore, the interim review effect on audit and audit-related fees is affected by size and corporate governance aspects. I also predict and find evidence that semi-annual reviews affect the year-end audit fees negatively. For a matched sample, I observe decreasing audit fees of 13.2% for the reviewed subsample – the total effect on the sum of audit and audit-related fees is still positive (5.7%). This result is the first to provide a measurement of a possible 'negative audit fee effect'. The purchase of semi-annual auditor reviews establishes a year-round audit process and mitigates year-end audit efforts. These results also vary by size and corporate governance quality. For a 'small' and 'low quality corporate governance' subsample I observe this shift of audit work from the year-end audit to the semi-annual review. It can be a sign that interim auditor involvement affects the year-end reporting process and the internal control structure of the firms. The same influence is not observable for the 'big' and 'high quality corporate governance' subsample. In this case, I provide results that a semi-annual review does not discipline the reporting system of well-structured firms and serves as a signal of due diligence. Therefore, the review decision influences the yearly reporting process in relation to governance structure and size. I also provide the first evidence of declining marginal cost for a review (audit-related fees) related to firm size. With respect to the benefits, I demonstrate for a sample of 2,452 firm-quarters that an interim review of an external auditor does not affect the quarterly earnings management behavior. For the fourth quarter there is weak evidence of an earnings quality improvement, but the total

effect of voluntary external auditor involvement is marginal or insignificant. In the last quarter the earnings management exceeds the interim quarters. These results are in line with various studies about interim earnings management (Dhaliwal et al. (2004); Jacob and Jorgensen (2007); Jeter and Shivakumar (1999); Kerstein and Rai (2007)). Overall, I find that interim reviews do not indicate a positive earnings quality effect.

This study makes three main contributions to the literature. First, the average sum of audit and audit-related fees are around 14.5% higher for 'reviewed' German listed firms. The semi-annual review decision adds additional auditor work to the overall audit process. Second, I provide the first evidence that audit fees and interim auditor involvement are negatively related (13.2%). The work shift between year-end and interim quarters influences the year-round audit process. This impact is not generalizable because of the nonlinear influence of size and corporate governance quality on the audit quality demand (Zaman et al. 2011). Third, the review does not affect earnings quality. The benefits of semi-annual auditor reviews for companies should be found in other areas, e.g. it can be a possible signaling effect, the supply of due diligence or the improvement of the audit and reporting process. This question needs further research.

The reminder of the paper is structured as follows: Section 2.2 summarizes the legal environment in Germany with respect to interim reporting, voluntary auditor reviews and audit fee reporting. Section 2.3 reviews the literature and develops my hypotheses. In Section 2.4 I explain the research design and the sample selection process. In Section 2.5 I show the univariate and multivariate results which explain the effect of voluntary interim reviews on the costs and benefits. Section 2.6 concludes and summarizes my results.

2.2   Legal Background

2.2.1   Interim Reporting

Since 2005 publicly traded consolidated firms disclose audited annual financial reports according to IFRS/IAS. The Transparency Directive Implementing Act (TDIA) – an implementation of the Directive 2004/109/EC of the European Parliament – came into

force after 31st December 2006 and restructured the interim reporting process for listed firms in Germany. Until 2007 a semi-annual report was mandatory in line with IAS 34. For firms listed at the so-called Prime Standard of the Frankfurt Stock Exchange – a segment which complies with high international transparency standards – quarterly reports according to IAS 34 were mandatory. The German Accounting Standard 6 (Deutscher Rechnungslegungs Standard – DRS) also required quarterly reports for companies in segments with lower transparency levels (General Standard), but this was just a recommendation and not legally required.

For fiscal years beginning after 31st December 2006 the interim reporting process was restructured and extended. Detailed requirements governing the contents of interim financial reports are stipulated in the German Securities Trading Act (Wertpapierhandelsgesetz – WpHG). For companies not listed in the Prime Standard the legislator introduced a mandatory disclosure of interim management statements for the first and second half of the fiscal year or first/third quarter interim reports in line with IAS 34, respectively.

Since the TDIA the German legislator differentiates between semi-annual and first/third quarter interim reports. For semi-annual reports the German government extended the IAS 34 interim report components with a mandatory management report and a management responsibility statement. These introduced components should provide more reliable and future-oriented information. Furthermore, the TDIA expanded the enforcement actions by the Financial Reporting Enforcement Panel (Deutsche Prüfstelle für Rechnungslegung) on semi-annual reports. Comparable extensions of first/third quarter interim reports were not introduced.

2.2.2   Interim Auditor Reviews

Before and after the TDIA a firm could voluntarily decide in favor of an audit or review; if an audit or review had been conducted the respective report had to be included in the interim report, but otherwise no explicit negative statement was required. The TDIA introduced a mandatory negative statement, if the semi-annual financial statements have neither been audited nor reviewed. The legal change also introduced a third-party

liability cap for auditor reviews of interim reports after 2006 up to € 4 million for negligent behavior, e.g. violation of auditing standards or ethical rules.

From 2006 to 2007 the demand of voluntary reviews for semi-annual reports for my sample increased from around 0.8% to 8.7%. By 2010, this rate rose to 16.7%. The same pattern for the first and third quarter reports was not observable (demand was only 3% in 2010). This could be attributed to the main material changes only for semi-annual reports. I take this into account in the following investigation and focus only on firms purchasing a semi-annual review in comparison to a sample not purchasing a review at all.

2.2.3   *Audit Fee Category Definition*

According to Section 285 No. 17 and 314 (1) No. 9 of the German Commercial Code (Handelsgesetzbuch), publicly traded firms have to report the service fees of the audited firm and its subsidiaries performed by the statutory auditor in four categories: audit fees, audit-related fees, tax fees and all other fees. The German Institute of Auditors (IDW) specifies this list in accordance with the Comments on Accounting (Stellungnahme zur Rechnungslegung) of the Main Technical Committee of the IDW (IDW RS HFA 36). IDW RS HFA 36 is binding for all members of the German Institute of Auditors.

The category 'audit fees' shall contain all aggregate fees billed for the audit of the fiscal year-end (consolidated) financial statement by the statutory auditor. This category also may include other audit services that are mandatory for the auditor and are included in the profit and loss statement of the audited company. As examples IDW RS HFA 36 mentions the audit of the dependencies report according to section 313 German Stock Corporations Act (Aktiengesetz – AktG), the audit of the regularity of the management of public enterprises in accordance with Section 53 of the German Law on Budgetary Principles (Haushaltsgrundsätzegesetz – HGrG) and further mandatory audits for banks.

'Audit-related fees' consist of the aggregate fees billed in the fiscal year for assurance and related services by the statutory auditor. It includes all fees for services of

the auditor, which are in (timely) relation to or addition to the year-end audit. IDW RS HFA 36 lists voluntary audits of the monitoring system (Section 317 (4) German Commercial Code (Handelsgesetzbuch – HGB) or audits according to the German Transformation Act (Umwandlungsgesetz – UmwG). The IDW categorizes the costs of voluntary reviews or audits of interim reports as audit-related fees.

The third category, 'tax fees', includes the aggregated fees for tax compliance, tax planning, and tax advice fees billed in the last fiscal year for professional services provided by the statutory auditor.

'All other fees' contains all fees billed by the statutory auditor other than those disclosed in the first three categories. IDW RS HFA 36 mentions explicitly the provision of valuation services.

2.3   Literature Review and Hypothesis Development

2.3.1   Audit Fees and Review Costs

A broad literature discusses the influence of firm and audit firm characteristics on audit fees. Following Simunic (1980), Beatty (1993) and Simunic and Stein (1996) the pricing function of an auditor is affected by audit costs and a litigation component. Auditor attributes like quality, tenure, or location as well as client attributes like size, risk, or complexity determine the audit fees (see the meta-analysis by Hay et al. (2006) and Hay (2012)). For the German audit market the literature shows a high level of market concentration, but an efficient price competition (Köhler et al. (2010); see for further evidence Bigus and Zimmermann (2008, 2009); Lenz (1996); Lenz and Ostrowski (1999); Lenz et al. (2006); Möller and Höllbacher (2009); Merkl (2011); Petersen and Zwirner (2008); Quick and Sattler (2011); Quick and Wiemann (2011); Wild (2010)).

The research on audit fees provides a good understanding of financial statement audit cost drivers. For voluntary review services the literature is limited. Ettredge et al. (1994) and Bédard and Courteau (2010) mention size and complexity as review cost drivers. Krishnan and Zhang (2005) find a negative relation between auditors' litigation risk and the disclosure of the interim review report, i.e. they provide evidence of a

liability component for the interim review pricing function. Overall, Bédard and Courteau (2010) observe an increase in audit fees (sum of audit and review fees in Canada) of about 19% for reviewed companies.

The International Standard on Review Engagements (ISRE) defines the scope of a review by a practitioner (ISRE 2400) or the auditor of the financial statement (ISRE 2410). The German Institute of Auditors released the standard on auditing 900 (IDW PS 900) referring to the international rules. The review of financial statements should be performed under consideration of IDW PS 900 and, in supplementary compliance with ISRE 2410 for publicly traded consolidated firms, reviewed by its year-end auditor. According to ISRE 2410 No. 20 'a review ordinarily does not require tests of the accounting records through inspection, observation or confirmation. Procedures for performing a review of interim financial information are ordinarily limited to making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures, rather than corroborating information obtained concerning significant accounting matters relating to the interim financial information.' The scope of a review leads to a lower extent of work in comparison to an annual audit. For example, the importance of inventories and accounts receivable may not increase audit work, because auditor reviews do not include procedures like physical inspections (Bédard and Courteau, 2010). Despite the differences of the scope between audits and reviews, the decision for a voluntary review should affect the sum of audit and audit-related fees positively. The additional auditor service within the year extends the audit/review work and should lead in sum to an increase of billed fees. This leads to the following hypothesis:

H2.1: The sum of audit and audit-related fees is higher for firms whose interim financial statements are reviewed by their statutory auditor.

Besides the different extent of audit work and litigation influence, the literature mentions the effect of a review purchase on the year-round audit process and year-end audit fees. In Ettredge et al. (2000, p. 195) they show that the frequency and proportion of 'reportable, nonroutine adjustments' recorded during the first three quarters are greater for companies with timely instead of retrospective reviews, while the frequency and

proportions of year-end adjustments are smaller. According to Ettredge et al. (1994, p. 137) a possible 'reduction in year-end audit fees is asserted in the professional literature and expected by some purchasers of timely reviews. However, it is not measured precisely by either purchasers or sellers of the service.' The shift of audit work to the interim reviews should affect the year-end audit fees negatively and improve the audit process. The audit fee categories – the classification of review costs in audit-related fees – provide the chance to extract the effect of a review decision on the year-end audit fees. The argumentation suggests the hypothesis:

H2.2: Audit fees are lower for firms whose interim financial statements are reviewed by their statutory auditor.

Further influencing aspects are discussed by Bédard and Courteau (2010). Similar to Ettredge et al. (1994) they expect the incremental effect of a review on the sum of audit and audit-related fees to decrease as firm size increases, e.g. declining marginal costs. Less sophisticated accounting and reporting systems, the higher impact of additional visits and lower quality accounting personnel of small firms lead to a negative association between fees and reviews as firm size increases. The results by Bédard and Courteau (2010) are contrary; the cost increment of a review on the sum of audit and review fees is increasing with firm size. One possible explanation for these contrary results can be that an interim review is a proxy for high quality corporate governance. Mangena and Tauringana (2008) found that high audit committee effectiveness is positively related to the demand for voluntary interim reviews, e.g. a complementary relation between internal and external controls. Zaman et al. (2011) investigate the influence of audit committee effectiveness on audit fees. For large firms they found 'that effective audit committees undertake more monitoring which results in wider audit scope and higher audit fees' (Zaman et al. (2011), p. 165). Besides a declining incremental review cost effect as size increases, there can be a contrary influence of higher demand of audit quality by large firms with high quality corporate governance. Using the unique legal situation in Germany I can test both effects: the declining review cost effect (*H2.3*) and the increasing governance cost effect on audit fees (*H2.4*) for increasing size. Therefore, I build the following hypotheses:

H2.3: The association between audit-related fees and the review of interim financial statements decreases as firm size increases.

H2.4: The association between audit fees and the review of interim financial statements increases as firm size increases.

2.3.2   *Benefits of Voluntary Interim Auditor Reviews*

The quality of financial reports depends on the reliability of the information provided to the decision makers and should offer decision-useful information. Following Dechow et al. (2010, p. 344) 'higher quality earnings provide more information about the features of a firm's financial performance that is relevant to a specific decision made by a specific decision-maker.' The study provides a wide overview of the earnings management literature. Two influencing determinants discussed in the literature are the governance and control system as well as the audit quality, i.e. the internal and external control quality and environment. The literature hypothesizes that auditors mitigate misstatements and improve earnings quality. A large body of studies summarized in Dechow et al. (2010) relate auditor size, office size, industry expertise, independence, tenure, fees and working hours to discretionary accruals or reported restatements as a measure of low earnings quality.

Regarding the interim reporting process, studies indicate that firms are timing income recognition over the financial quarters. This affects the earnings quality of interim and fourth quarters negatively (Dechow et al. (2010)). Das et al. (2009, p. 799) observe that the frequency of earnings reversals in the fourth quarter in either direction is 'significantly greater than it would be expected by chance'. Earlier evidence of year-end adjustments is provided by Dhaliwal et al. (2004), Jacob and Jorgensen (2007), Jeter and Shivakuma (1999), and Kerstein and Rai (2007). Following Jeter and Shivakuma (1999, p. 318) 'this is the quarter in which managers have the greatest incentives to achieve specified target levels of earnings.' They found that squared abnormal returns are greater in the fourth than in interim quarters. Further studies examine the distribution of interim earnings over varying accumulated periods (Jacob and Jorgensen (2007), Kerstein and

Rai (2007)). Their results show a concentrated earnings management effort in the last financial quarter to meet or beat annual targets. In contrast, a study by Brown and Pinello (2007) argues that the year-end audit increases interim earnings management to avoid earnings surprises in quarterly reports.

The voluntary involvement of an external auditor in the interim reporting process could affect the earnings management behavior of the management between interim and year-end financial statements and over the entire year. With respect to interim review services, studies demonstrate that a (timely) interim review or audit can be an adequate method to influence the interim reporting process. Ettredge and Simon (2000) and Boritz and Liu (2006) investigate the reporting lags of (timely) reviewed firms in relation to retrospective or non-reviewed firms. Ettredge and Simon (2000) estimate the quarterly and annual reporting lags that would occur if companies switch to timely reviews. Switching to a timely review would reduce annual earnings release lags only when interim earnings contain unusual components. These studies show an effect of (timely) auditor reviews on the interim reporting quality. There is only weak evidence in the literature on the role a voluntary review plays in mitigating interim earnings management. It can be assumed that earnings quality increases, because auditor review services can be viewed as contributing to the year-end audit. Caramanis and Lennox (2008) find a positive relation between hours worked by the auditor and earnings quality. A review purchase leads to an increase in working hours and should enhance the earnings quality. Boritz and Liu (2006) mention a possible decrease in restatement rates of annual reports due to better knowledge of the client, if an auditor performs a review. It can be assumed that a review should increase the reliability, improve the year-around reporting process and reduce information risk, 'especially in terms of the quality of estimates, accruals and earnings' (Boritz and Liu (2006), p. 7). This should increase earnings quality in the interim financial statements and affect the income recognition across periods within a fiscal year. Bédard and Courteau (2010) analyze the effect of interim reviews on accruals quality across periods within a fiscal year to a (matched) non-reviewed sample. The study provides weak evidence of an association between a lower level of absolute unexpected accruals in the fourth quarter and the reviewed sample, but no effect on the interim unexpected absolute or signed accruals. They suggest that 'while the review of interim financial statements may help to reduce the need for correction of estimation

errors at year-end, it is inefficient at controlling unexpected accruals in the interim reports or at curbing earnings management.' (Bédard and Courteau (2010), p. 2)

The intention of interim and year-end earnings management, the extension of working hours by auditors providing additional review services and its possible effect on the year-around reporting process lead us to the following hypotheses:

H2.5: The review of interim financial statements increases earnings quality in interim financial statements.

H2.6: The review of interim financial statements increases earnings quality in fourth quarter financial statements.

2.4   Research Design and Sample Selection

2.4.1   Audit Fee Model

To test the association of a voluntary semi-annual auditor review decision on audit fees, audit-related fees and the sum of both, I compare a sample of firms that disclosed a semi-annual review report to the total sample. I estimate the following multivariate regression model using firm and year cluster-adjusted t-statistics based on models in the literature (Gow et al. (2010); Hay et al. (2006); Petersen (2009)):

$$FEE_{i,t} = \beta_0 + \beta_1 REVIEW_{i,t} + \beta_2 ASSETS_{i,t} + \beta_3 ROA_{i,t} + \beta_4 LEV_{i,t} + \beta_5 CUR\_RAT_{i,t} +$$
$$\beta_6 AR\_INV_{i,t} + \beta_7 N\_SEG_{i,t} + \beta_8 M/B_{i,t} + \beta_9 PRIME_{i,t} + \beta_{10} YEAREND_{i,t} +$$
$$\beta_{11} AUDCHG_{i,t} + \beta_{12} AC_{i,t} + \beta_{13} BIG4_{i,t} + \beta_{14} BLOCK\_0\_10_{i,t} +$$
$$\beta_{15} BLOCK\_10\_25_{i,t} + \beta_{16} BLOCK\_25\_50_{i,t} + \Sigma\gamma Industries_{i,t} + \varepsilon_{i,t} \quad (2.1)$$

$$FEE_{i,t} = \beta_0 + \beta_1 REVIEW_{i,t} + \beta_{2-16} CONTROL_{i,t} +$$
$$\beta_{17-31} CONTROL_{i,t} * REVIEW_{i,t} + \Sigma\gamma Industries_{i,t} + \varepsilon_{i,t} \quad (2.2)$$

Table 2.1 provides detailed definitions of all variables. *FEE* is substituted by *A_FEE* (logarithm of audit fees), *AR_FEE* (logarithm of audit-related fees) and *A_AR_FEE* (logarithm of the sum of audit and audit-related fees), successively. I run each model for these three dependent variables as a function of *REVIEW* – a binary variable equal to one for a company purchasing a semi-annual review, and zero otherwise – and additional cost determinants. In each regression I include industry-level fixed effects. The industry is defined corresponding to the Fama and French (2008) 12 groups of SIC codes.

Model 2.1 extracts the influence of a review purchase on the different cost components. Following the German legal requirements, the costs of interim reviews are included in audit-related fees. I assume a positive association between *REVIEW* and *A_AR_FEE* (*H2.1*). The year-round audit process and a possible shift of work from the annual audit to the interim reviews should reduce the *A_FEE* for reviewed firms (*H2.2*). *Model 2.2* includes interaction terms of the cost determinants. I assume a negative association of *AR_FEE* (*H2.3*) and a positive association of *A_FEE* (*H2.4*) with reviewed firms as firm size increase (*ASSETS*REVIEW*).

To control for fee drivers, I include firm and auditor attributes from the existing literature, which have been hypothesized to be associated with the remuneration of auditors. The variable *ASSETS* as a measure of firm size alone generally accounts for a large proportion and variation in audit fees (Francis (1984); Francis and Stokes (1986); Palmrose (1986); Simunic (1980)). Return on assets (*ROA*) measures the profitability and the risk to which an auditor could be exposed to liability costs in the case that its client fails. The liability component in fees should be higher in case of a low *ROA*. As a proxy for business and financial risk, the next firm related control variables are leverage (*LEV*) and the current ratio (*CUR_RAT*). Two areas positively associated with inherent risk and most frequently cited as being difficult to audit are inventory and receivables (*AR_INV*), because of a higher risk of error and requiring specialized audit procedures (Hay et al., 2006). As a control variable for complexity I include the number of business segments (*N_SEG*). This variable should make a review more time-consuming and difficult to complete. To control for specific risks of growth firms I add the market-to-book-ratio (*M/B*) to the model. A listing in the Index Prime Standard of the Frankfurt Stock Exchange entails compliance with high international transparency standards (*PRIME*).

Table 2.1: Definition of variables

$FEE_{i,t}$	Fee variable substituted by *A_FEE, AR_FEE,* and *A_AR_FEE* of firm *i* in period *t*.
$A\_FEE_{i,t}$	Natural logarithm of audit fees for firm *i* in period *t* where audit fees are 'audit fees' billed by the firm´s statutory auditor as reported in the firm´s annual report according to the German Commercial Code in the four categories audit fees, audit-related fees, tax fees and all other fees.
$AR\_FEE_{i,t}$	Natural logarithm of audit-related fees for firm *i* in period *t* where audit-related fees are 'audit-related fees' billed by the firm´s statutory auditor as reported in the firm´s annual report according to the German Commercial Code in the four categories audit fees, audit-related fees, tax fees and all other fees. Auditor review costs are included.
$A\_AR\_FEE_{i,t}$	Natural logarithm of audit and audit-related fees for firm *i* in period *t* where audit and audit-related fees are the sum of 'audit fees' and 'audit-related fees' billed by the firm´s statutory auditor as reported in the firm´s annual report according to the German Commercial Code in the four categories audit fees, audit-related fees, tax fees and all other fees.
$REVIEW_{i,t}$	Binary variable that takes a value of one if firm *i* has purchased a voluntary semi-annual review, and zero otherwise.
$ASSETS_{i,t}$	Natural logarithm of total assets of firm *i* in period *t* ($ASSETS_{i,q}$ and $ASSETS_{i,q-1}$, respectively).
$ROA_{i,t}$	Income before extraordinary items plus net-of-tax interest expense deflated by average total assets of firm *i* in period *t*. I winsorize *ROA* at the top and bottom 1 percent ($ROA_{i,q}$ and $ROA_{i,q-1}$, respectively).
$LEV_{i,t}$	Total debt divided by total assets of firm *i* in period *t*. I winsorize *LEV* at the top and bottom 1 percent ($LEV_{i,q}$, respectively).
$CUR\_RAT_{i,t}$	Current assets divided by current liabilities of firm *i*. I winsorize *CUR_RAT* at the top and bottom 1 percent.
$AR\_INV_{i,t}$	Sum of accounts receivables and inventory scaled by total assets of firm *i* in period *t*. I winsorize *AR_INV* at the top and bottom 1 percent.
$N\_SEG_{i,t}$	Number of product segments of firm *i* in period *t*.
$M/B_{i,t}$	Market value of equity divided by the book value of equity of firm *i* in period *t*. I winsorize *M/B* at the top and bottom 1 percent.
$PRIME_{i,t}$	Binary variable that takes a value of one if firm *i* is listed in the *Prime All Share Index* of the Frankfurt Stock Exchange in period *t*, and zero otherwise. The listing in the *Prime All Share Index* complies with high international transparency standards.
$YEAREND_{i,t}$	Binary variable that takes a value of one if firm *i*´s financial year is equal to the calendar year in period *t*, and zero otherwise.
$AUDCHG_{i,t}$	Binary variable that takes a value of one if firm *i*´s auditor in period *t* is different from the auditor in period *t-1*, and zero otherwise.
$AC_{i,t}$	Binary variable that takes a value of one if firm *i* has voluntarily established an audit committee in line with the German Corporate Governance Code in period *t*, and zero otherwise ($AC_{i,q}$, respectively).

Table 2.1: Definition of variables (continued)

$BIG4_{i,t}$	Binary variable that takes a value of one if firm i has a '*BIG4*' auditor in period t, and zero otherwise ($BIG4_{i,q}$, respectively).
$BLOCK\_0\_10_{i,t}$	Binary variable that takes a value of one if firm i has no major shareholder with an ownership of at least 10 percent, and zero otherwise.
$BLOCK\_10\_25_{i,t}$	Binary variable that takes a value of one if firm i has a major shareholder with an ownership of at least 10 percent, but less than 25 percent, and zero otherwise.
$BLOCK\_25\_50_{i,t}$	Binary variable that takes a value of one if firm i has a major shareholder with an ownership of at least 25 percent, but less than 50 percent, and zero otherwise.
$CONTROL_{i,t}$	Control variable substituted by *ASSETS, ROA, LEV, CUR_RAT, AR_INV, N_SEG, M/B, PRIME, YEAREND, AUDCHG, AC, BIG4, BLOCK_0_10, BLOCK_10_25* and *BLOCK_25_50* for firm i in period t.
$Q\_WC\_ACC_{i,q}$	Change of non-cash working capital accruals scaled by lagged total assets of firm i in period q where change of non-cash working capital accruals are calculated as the change in current operating assets, net of cash and short-term investments, less the change in current operating liabilities, net of short-term debt.
$\Delta SALES_{i,q}$	Change of revenues of firm i in period q scaled by lagged total assets where the change of revenues is calculated as the difference between revenues in period q and revenues of period q-1.
$Q\_JM_{i,q}$	Total signed discretionary accruals for firm i in period q measured as the residual from a cross-sectional Jones (1991) model with performance adjustment (Kothari et al., 2005) estimated for each year and industry combination (12-industry classification by Fama and French (2008)) with at least 5 observations, scaled by total assets. I winsorize Q_JM at the top and bottom 1 percent.
$Q\_JM\_ABS_{i,q}$	Absolute value of $Q\_JM_{i,q}$ of firm i in period q.
$Q\_JM\_POS_{i,q}$	Only positive values of $Q\_JM_{i,q}$ of firm i in period q.
$Q\_JM\_NEG_{i,q}$	Only negative values of $Q\_JM_{i,q}$ of firm i in period q.
$Q2\_REVIEW_{i,q}$	Binary variable that takes a value of one if firm i has purchased a review for the semi-annual report in period q, and zero otherwise.
$Q4\_REVIEW_{i,q}$	Binary variable that takes a value of one in the fourth quarter if firm i has purchased at least one (semi-annual) review in the financial year, and zero otherwise.
$Q4_q$	Binary variable that takes a value of one in the fourth quarter, and zero otherwise.
$FREEFLOAT_{i,t}$	Shares outstanding minus shares held by corporations, holding companies, individuals and government agencies divided by shares outstanding (in percentage) of firm i in period t.
$Q\_UJM_{i,q}$	Total signed discretionary accruals for firm i in period q measured as the residual from a cross-sectional (unmodified) Jones (1991) model estimated for each year combination and industry (12-industry classification by Fama and French (2008)) with at least 5 observations, scaled by total assets. I winsorize Q_UJM at the top and bottom 1 percent.

I assume a demand for higher audit quality for firms listed in the Prime Standard. The binary variable *YEAREND* represents the fact that the annual audit is performed in the busy season. Hay et al. (2006, p. 177) argue that an 'audit conducted during the busy season may be more costly if audit staff have to work overtime; alternatively, audit firms might offer discounted audit fees for work outside the busy season to use otherwise idle resources. In either case, there will be a positive relationship with audit fees.' I expect a negative relation between auditor changes from the last to the current financial year (*AUDCHG*) and audit fees, because a company may decide on an auditor change to obtain lower audit fees (DeAngelo (1981); Kanodia and Mukherji (1994)). As a proxy for the corporate governance structure a binary variable for the voluntary existence of an audit committee (*AC*) is contained and there should be a positive relation to audit fees (Zaman et al., 2011). For an auditor attribute control variable the auditor type (*BIG4*) is included. Simunic and Stein (1996) argue that for a given client, a cost minimizing audit by a BigX firm should result in a higher effort level, ceteris paribus (Craswell et al., 1995) and thus, in higher audit fees. In the literature the influence of ownership on audit fees, earnings quality, corporate governance or possible equity market incentives leads to mixed results. The existence of a major shareholder 'could either indicate higher agency costs or stronger control, with potentially conflicting effects on audit fees' (Hay et al. (2006), p. 171). Sánchez-Ballesta and Garcia-Meca (2007, p. 677) support the hypothesis that 'insider ownership contributes both to the informativeness of earnings and to constraining earnings management when the proportion of shares held by a major shareholder is not too high. When insiders own a large percentage of shares, they are entrenched and the relation between insider ownership and earnings informativeness reverses.' Therefore, I introduce binary variables equal to one for companies without any ownership greater or equal to 10% (*BLOCK_0_10*), a concentrated ownership of the major shareholder greater than or equal to 10%, but less than 25% (*BLOCK_10_25*) and a major shareholder greater than or equal to 25%, but less than 50% (*BLOCK_25_50*), and zero otherwise.

2.4.2   *Earnings Quality Model*

The literature discusses various earnings quality measures. The unexpected (unpredicted) accrual models derive from the Jones-Model (Jones, 1991). In the last two decades a lot of extensions and improvements were developed (Dechow and Sloan (1995); Kothari et al. (2005)). Other investigations have run 'horse races' (Dechow et al. (2010), p. 391) across accrual models (Guay et al. (1996); Jones et al. (2008)) to test their accuracy and efficiency. Further studies focus on interim earnings quality measures (Bédard and Courteau (2010); Bandyopadhyay et al. (2007); Yang and Krishnan (2005)).

The various models calculate the unexpected current or long-term accruals on a timely or cross-sectional base. Bartov et al. (2001) find that the cross-sectional Jones model and its modification by Dechow et al. (1995) outperform their time-series counterparts in detecting earnings management. Following Bédard and Courteau (2010) I focus on the accounting treatment of operations rather than on real operations. Therefore I choose an 'unmodified' model with a control for extreme performance and estimate the models for each quarter in cross-section by industry. The unavailability of gross property, plant and equipment on a quarterly basis force us to take a current accrual perspective.

The unexpected accruals are measured by the following equation based on models in the literature (Francis et al. (2005); Jones (1991); Kothari et al. (2005); Yang and Krishnan (2005)):

$$Q\_WC\_ACC_{i,q} = \beta_0 + \beta_1\big(1/ASSETS_{i,q-1}\big) + \beta_2\Delta SALES_{i,q} + \beta_3 ROA_{i,q-1} + \varepsilon_{i,q} \quad (2.3)$$

Quarterly working capital accruals (Q_WC_ACC) are computed as the change in current operating assets, net of cash and short-term investments, less the change in current operating liabilities, net of short-term debt from *q-1* to *q*. All variables are scaled by lagged total assets. I run *Model 2.3* cross-sectional for at least 5 observations of each year and industry combination (12-industry classification by Fama and French, 2008). The unexpected accruals for firm *i* are measured as the residual (Q_JM).

To test the influence of a review purchase on earnings quality of interim financial statements (*H2.5* and *H2.6*), I regress the interim review decision on unexpected accruals. The following multivariate regression model using firm and year cluster-

adjusted t-statistics is measured based on models in the literature (Bédard and Courteau (2010); Gow et al. (2010); Petersen (2009)):

$$Q\_JM_{i,q} = \beta_0 + \beta_1 Q2\_REVIEW_{i,q} + \beta_2 Q4\_REVIEW_{i,q} + \beta_3 Q4_q +$$
$$\beta_4 ASSETS_{i,q} + \beta_5 ROA_{i,q} + \beta_6 LEV_{i,q} + \beta_7 AC_{i,q} +$$
$$\beta_8 BIG4_{i,q} + \Sigma\gamma_1 Industries + \varepsilon_{i,q} \qquad (2.4)$$

Table 2.1 provides detailed definitions of all variables. *Q_JM* is substituted by *Q_JM_ABS* (absolute values of unexpected accruals), *Q_JM_POS* (positive values of unexpected accruals) and *Q_JM_NEG* (negative values of unexpected accruals), successively. I run each model for these three dependent variables as a function of *Q2_REVIEW*, *Q4_REVIEW, Q4* and additional control variables. *Q2_REVIEW* represents a binary variable equal to one for reviewed semi-annual reports if there is a review performed in period *q*. *Q4_REVIEW* is equal to one in the fourth quarters if there is at least one (semi-annual) review in the financial year. Additionally I include the dichotomous variable *Q4* to control for last quarter earnings management behavior.

According to *H2.5* and *H2.6* I expect a negative association between *Q2_REVIEW*, *Q4_REVIEW* and *Q_JM_ABS*, e.g. the review purchase increases earnings quality in the reviewed interim report and in the last quarter. The earnings quality model includes controls for size, profitability, financial risk, corporate governance quality and auditor attributes. All regressions include industry-level fixed effects, with industry definitions corresponding to the 12 groups of SIC codes by Fama and French (2008).

2.4.3   Sample Selection and Data

I collect the data from the Worldscope database (Thomson ONE Analytics). Information about a review purchase and the existence of an audit committee is collected from the annual and interim financial statements. The disclosure of audit fees (four categories) and the use of international accounting standards became mandatory in 2005. As the TDIA was introduced in 2007 and the following developing auditor review market, I decide to include 2007 and the following years up to 2010. Therefore, the investigation period includes data for German listed firms listed at the Frankfurt Stock

Exchange from 2006 to 2010, because of lagged financial data needed for the accrual models.

The Worldscope database represents 3,632 firm years from 2007 to 2010 for firms listed on the Frankfurt Stock Exchange. The exclusion banks, insurance firms and firms in the financial industry create a sample of 2,988 firm-year observations. Firms not listed at the regulated market or firms with unavailable financial data, fees and review information are eliminated and reduce the sample to 1,149 firm-year observations. Firms listed at the NYSE, presenting a negative or modified auditor opinion, disclosing an enforcement release or purchasing a joint audit of the annual financial statement were deleted so that a sample of 1,099 firm year observations was obtained. I do not include firms that also purchase - besides the voluntary semi-annual review - reviews in the first and/or third quarter. First and third quarter reviews are the exception in Germany and do not offer sufficient observations to include it in the models. This reduces the unbalanced panel to 1,072 firm-year observations.

In the sample, three review observations classify the review costs in 'audit fees' in the notes of the financial statement. Further 11 observations disclose a review report and audit-related fees of zero. The problem of additional components in audit and audit-related fees leads us to drop all observations reporting additional services in audit-related fees or report higher audit-related than audit fees. The rest of the sample informs that the review costs are categorized as audit related fees or no further information is supplied. In the latter case I assume a correct categorization according to the legal and quasi-legal requirements and include them in the analysis. This leads to a total sample of 1,023 firm-years or 4,092 firm-quarters. In the earning quality models not sufficient data to estimate unexpected accruals creates a quarterly sample of 2,452 firm-quarter observations. Panel A of Table 2.2 provides detailed information of the sample construction.

Panel B of Table 2.2 summarizes the trend of the review demand from 2007 to 2010. In the sample all interim reviews are performed by the year-end auditor. Overall out of 1,023 observation years 150 semi-annual reports are reviewed (14.7%). Before the TDIA came into force only 2 of 235 companies purchased a review in 2006. After the legal change, 21 of 241 companies decided in favor of a review (8.7%). From 2007 to 2010 the observable reviews increased to 16.7%. Panel C provides the sample distribution by industry.

Table 2.2: Sample distribution by year and industry

Panel A: Sample construction

	Firm-years		
	Review sample	Non-Review sample	Total
WORLDSCOPE German population for the years 2007 to 2010			3,632
Banks and insurance companies			(644)
Not listed at the regulated market or missing financial data and audit fees			(1,753)
Missing review information			(86)
Negative auditor opinion			(1)
Audited by two auditors			(4)
Cross-listed firms			(21)
Disclosing an enforcement release			(24)
Auditor reviews in the first and/or third quarter			(27)
Review fees in 'Audit fees' instead of 'Audit-related fees'			(14)
Special components in 'Audit-related fees'			(35)
Total sample (annually; audit fee model)	150	873	1,023
	14,66%	85,34%	100,00%

	Firm-quarters		
	Review sample	Non-Review sample	Total
Total sample (annually)			1,023
Firm-quarters			4,092
Missing data for unexpected accrual model			(1,640)
Total sample (quarterly)	120	2,332	2,452
Sample first quarter			572
Sample second quarter	120 (19,48%)	496 (80,52%)	616
Sample third quarter			596
Sample fourth quarter			668

Panel B: Sample distribution by year

Industry	Review sample	Proportion of Reviews	Non-Review sample	Total	Proportion of years
Fiscal year 2006 *(not included)*	2	0.84%	235	237	---
Fiscal year 2007	21	8.71%	220	241	23.56%
Fiscal year 2008	42	16.22%	217	259	25.32%
Fiscal year 2009	43	16.60%	216	259	25.32%
Fiscal year 2010	44	16.66%	220	264	25.81%
Total	150	14.66%	873	1,023	100.00%

Panel C: Sample distribution by industry

Industry	Review sample	Proportion of Reviews	Non-Review sample	Total	Proportion of industries
Consumer non-durables	8	10.00%	72	80	7.82%
Consumer durables	14	30.43%	32	46	4.50%
Manufacturing	32	13.50%	205	237	23.16%
Chemicals	5	12.50%	35	40	3.91%
Business equipment	15	6.89%	203	218	21.31%
Communication	7	20.59%	27	34	3.32%
Utilities	3	13.64%	19	22	2.15%
Retail	29	22.14%	102	131	12.81%
Healthcare	12	18.46%	53	65	6.35%
Others	25	16.66%	125	150	14.66%
Total	150	14.66%	873	1,023	100.00%

2.5   Results

2.5.1   Descriptive Statistics and Univariate Results

Table 2.3 presents descriptive statistics of the variables. Panel A illustrates that firm size in the main sample is on average €3.772 billion in total assets (median of €207 million) and firms pay €0.88 million for the sum of audit and audit-related fees (median of €0.24 million). More than 50% of the total sample reports an amount of 'zero' for audit-related fees (n=516; not tabulated). Except for the large differences between mean and median in total assets and fees, this relation is almost equal for *ROA* (mean 0.04), *LEV* (mean 0.20), *CUR_RAT* (mean 2.10), *AR_INV* (mean 0.36), *N_SEG* (mean 2.72) and *M/B* (mean 1.99), which shows no further bias in the dataset. 65% set up an audit committee and 71% are listed in the Prime Standard. 52% have their year-end audit conducted by a BIG4 auditor. For the ownership proxies, 27% have no major owner with more than 10%, 19% have a major owner between 10% and 25% and one quarter of the sample have at least one major shareholder with an ownership between 25% and 50%. The unexpected accruals (*Q_JM*) on a quarterly basis provide a mean of 0.0012 and a standard deviation of 0.0455. Panel B of Table 2.3 shows the Pearson/Spearman correlation matrix between the independent variables in the model. The highest correlation is between *ASSETS* and audit committee existence (0.54/0.57). The influence of size on *AC* can occur because of a supervisory board size effect. For a company with a supervisory board comprised of three members it is neither possible nor useful to set up an audit committee.

Table 2.4 provides univariate findings. Means of the reviewed and non-reviewed sample are compared using a t-test for fees, firm characteristics and unexpected accruals. All fee variables are significantly higher at a 1% level for the reviewed sample. The mean values of the reviewed and non-reviewed subsamples differ significantly for most of the firm characteristic measures. This univariate analysis indicates that reviewed firms are bigger, listed in the Prime Standard, audited by a *BIG4*, have a higher level of leverage and possess an audit committee. The reviewed sample shows a negative significant difference in the current ratio, growth opportunities (*M/B*) and the *AR_INV*. For the ownership variables *BLOCK_0_10* shows a positive effect on the demand for a review. For the earnings quality measures on a quarterly basis I observe no significant differences.

Table 2.3: Descriptive Statistics

Panel A: Descriptive statistics for variables

	Number of Obs.	Mean [Prop.]	Std. Dev.	Lower quartile	Median	Upper quartile
A_FEE (Mio.€)	1,023	0.74	2.11	0.12	0.22	0.50
AR_FEE (Mio.€)	1,023	0.14	0.64	0.00	0.00	0.05
A_AR_FEE (Mio.€)	1,023	0.88	2.63	0.12	0.24	0.52
ASSETS (Mio.€)	1,023	3,772	19,042	73.16	207.88	967.84
ASSETS	1,023	19.51	1.96	18.11	19.15	20.69
ROA	1,023	0.04	0.10	0.02	0.05	0.08
LEV	1,023	0.20	0.17	0.04	0.19	0.31
CUR_RAT	1,023	2.10	1.55	1.17	1.67	2.37
AR_INV	1,023	0.36	0.17	0.22	0.36	0.49
N_SEG	1,023	2.72	1.17	2.00	3.00	3.00
M/B	1,023	1.99	1.75	0.96	1.49	2.42
PRIME	1,023	[0.71]				
YEAREND	1,023	[0.85]				
AUDCHG	1,023	[0.08]				
AC	1,023	[0.65]				
BIG4	1,023	[0.52]				
BLOCK_0_10	1,023	[0.27]				
BLOCK_10_25	1,023	[0.19]				
BLOCK_25_50	1,023	[0.25]				
Q_JM	2,452	0.0012	0.0455	-0.0210	-0.0002	0.0236

Panel B: Correlation for independent variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) ASSETS		**0.09**	**0.33**	**-0.33**	0.01	**0.30**	**0.10**	**0.22**	-0.01	**-0.12**	**0.36**	**0.57**	**0.09**	-0.03	-0.02
(2) ROA	**0.17**		**-0.21**	**0.20**	**0.08**	0.00	**0.34**	0.04	0.00	**-0.08**	0.04	-0.03	-0.03	**-0.08**	0.02
(3) LEV	**0.29**	**-0.12**		**-0.52**	-0.04	**0.12**	**-0.11**	-0.06	0.03	-0.01	0.05	**0.14**	0.05	0.01	0.00
(4) CUR_RAT	**-0.31**	**0.06**	**-0.40**		**0.14**	**-0.19**	-0.04	0.03	-0.03	-0.03	**-0.14**	**-0.17**	**-0.06**	-0.01	0.03
(5) AR_INV	-0.03	**0.08**	-0.07	-0.07		0.00	-0.05	0.02	**-0.11**	0.02	-0.05	0.03	0.06	-0.04	0.01
(6) N_SEG	**0.33**	0.03	**0.10**	**-0.14**	0.01		**0.06**	**0.14**	0.04	0.02	**0.14**	**0.06**	-0.01	-0.05	0.03
(7) M/B	-0.06	0.04	**-0.07**	0.02	-0.04	-0.03		**0.08**	0.02	-0.02	**0.07**	0.02	-0.01	**-0.09**	0.06
(8) PRIME	**0.24**	0.02	**-0.07**	-0.03	0.01	**0.14**	0.05		-0.01	-0.06	**0.08**	**0.26**	**-0.11**	**0.20**	0.06
(9) YEAREND	0.00	0.01	0.05	-0.01	**-0.10**	0.04	0.01	-0.01		-0.02	0.06	-0.04	**0.07**	0.01	0.02
(10) AUDCHG	**-0.12**	**-0.07**	-0.01	-0.02	0.02	0.01	0.03	-0.06	-0.02		**-0.09**	**-0.11**	-0.02	0.03	-0.02
(11) BIG4	**0.37**	0.06	0.03	**-0.13**	-0.06	**0.13**	-0.01	**0.08**	0.06	**-0.09**		**0.36**	**0.10**	0.03	**-0.14**
(12) AC	**0.54**	-0.01	**0.11**	**-0.22**	0.03	**0.07**	**-0.07**	**0.26**	-0.04	**-0.11**	**0.36**		**0.07**	**0.07**	0.01
(13) BLOCK_0_10	**0.10**	-0.02	0.05	-0.04	0.05	-0.03	-0.04	**-0.11**	0.07	-0.02	**0.10**	0.07		**-0.30**	**-0.35**
(14) BLOCK_10_25	-0.02	**-0.10**	0.01	-0.04	-0.04	-0.01	0.03	**0.20**	0.01	0.03	0.03	**0.07**	-0.30		**-0.28**
(15) BLOCK_25_50	-0.03	0.00	0.01	0.04	0.01	0.02	0.04	0.06	0.02	-0.02	**-0.14**	0.01	**-0.35**	**-0.28**	

Notes: This table shows descriptive statistics and correlations for the full sample (1,023 observations for the annual fee model and 2,452 observations for the quarterly earnings quality model). Panel A provides descriptive statistics for the variables. Panel B shows pair-wise Spearman (above the diagonal) and Pearson correlation coefficients (below the diagonal) for the independent variables. Bold numbers indicate two-tailed significance at the 0.05 level. Variables are defined in Table 2.1.

Table 2.4: Univariate findings

	Mean		Mean difference		
	Review sample	Non-Review sample	Diff.	Sig.	Number of Obs. (reviewed)
A_FEE	13.309	12.336	0.973***	(9.54)	1,023 (150)
AR_FEE	11.987	4.248	7.740***	(18.01)	1,023 (150)
A_AR_FEE	13.582	12.396	1.186***	(11.39)	1,023 (150)
ASSETS	21.033	19.248	1.785***	(10.86)	1,023 (150)
ROA	0.033	0.041	-0.008	(-0.89)	1,023 (150)
LEV	0.263	0.191	0.071***	(4.83)	1,023 (150)
CUR_RAT	1.731	2.160	-0.429***	(-3.14)	1,023 (150)
AR_INV	0.312	0.366	-0.054***	(-3.55)	1,023 (150)
N_SEG	2.753	2.711	0.042	(0.41)	1,023 (150)
M/B	1.742	2.029	-0.287*	(-1.85)	1,023 (150)
PRIME	0.827	0.685	0.142***	(3.54)	1,023 (150)
YEAREND	0.907	0.845	0.061**	(1.97)	1,023 (150)
AUDCHG	0.047	0.080	-0.034	(-1.44)	1,023 (150)
AC	0.820	0.468	0.352***	(8.21)	1,023 (150)
BIG4	0.813	0.621	0.192***	(4.61)	1,023 (150)
BLOCK_0_10	0.333	0.259	0.074*	(1.90)	1,023 (150)
BLOCK_10_25	0.207	0.192	0.014	(0.41)	1,023 (150)
BLOCK_25_50	0.227	0.250	-0.023	(-0.60)	1,023 (150)
Q_JM	0.000	0.001	0.001	(0.21)	2,452 (120)
Q_JM (quarter 2)	0.000	-0.002	-0.002	(-0.42)	616 (120)

Notes: This table shows univariate results for the dependent and independent variables. Variables are defined in Table 2.1. *, **, and *** indicate two-tailed significance at the 0.1, 0.05, and 0.01 level.

2.5.2   *Multivariate Results – Audit Fee Model*

In Tables 2.5 and 2.6 I present the results of the audit fee model without (*Model 2.1*) and with interaction terms (*Model 2.2*), respectively, of the relation between *REVIEW* and fees paid to the auditor. Three specifications for each model is given and the dependent variable *FEE* is substituted by audit fees (*A_FEE*), audit-related fees (*AR_FEE*) and the sum of audit and audit-related fees (*A_AR_FEE*). The two tables present the results of regressing the dependent fee variable on *REVIEW* and different control variables. Each model includes 1,023 firm-year observations from 2007 to 2010. For all regression models, I use two-way clustering (firm and year) (see Petersen 2009) to take into account the non-independence of firm-level observations over time. The adjusted R^2 differs from around 0.82 for the *A_FEE* and *A_AR_FEE*-models to 0.41 for the *AR_FEE* model. The variation inflation factor (VIF) provides a mean value of 1.48 with the highest value of 2.39 for the natural logarithm of total assets and indicates no multicollinearity influences.

I test the impact of semi-annual review purchases on *A_AR_FEE* (*H2.1*) and *A_FEE* (*H2.2*). Table 2.5, column 3 reveals a statistically positive relationship between *REVIEW* and *A_AR_FEE*, supporting *H2.1*. The coefficient for *REVIEW* of 0.135 is significant at a 5% level. Using the transformation by Kennedy (1981; $(e^{coef.} - 1) \cdot 100$) I calculate that having a review leads to an increase in *A_AR_FEE* of around 14.45%. This result is in line with Bédard and Courteau (2010, 19%). The increase in work by engaging an auditor for an interim review increases the sum of audit and audit-related fees of about 14.45%. For *H2.2* – the effect of a semi-annual review on audit fees – I do not observe a significant negative association. Without controlling for self-selection bias and a possible nonlinearity impact of firm size, I reject *H2.2*, i.e. there is no evidence of a shift in audit work from the year-end audit to the semi-annual review period.

For the included control variables, the coefficients are significant and in the expected direction for all variables except *LEV, AR_INV, YEAREND* and *AUDCHG*. These control variables show no statistically significant influence. For the *A_FEE* model – the results of the *A_AR_FEE* model are quantitatively and qualitatively comparable – *AC* shows a significant positive influence. This is in line with Zaman et al. (2011) and the argument that high governance quality leads to a higher demand for audit quality. The positive impact of an ownership smaller than 50% on audit fees can be interpreted as a

higher audit effort for companies without an entrenched major shareholder (Sánchez-Ballesta and Garcia-Meca, 2007). Column 2 of Table 2.5 (*AR_FEE*) is reported to give the ability to compare the results with the interaction term audit fee model. It shows a highly significant positive effect of a review purchase on audit-related fees, but the model explains only about 41% of the variation in audit-related fees for the sample.

Table 2.6 presents the results of the multivariate audit fee model including the interaction terms between *REVIEW* and the control variables. Hypothesis 2.3 predicts that the incremental audit-related fees for reviewed firms decrease with increasing firm size. In other words, as a result of lower quality in the accounting and reporting system, I assume that the marginal costs of a review for small firms should be higher (Ettredge et al., 1994). The result is in line with *H2.3*. The interaction term of *REVIEW* and *ASSETS* has a negative significant effect on the audit-related fees (*AR_FEE*; coef.: -0.802***; *t-value*: -4.75), e.g. the additional review costs decline with increasing firm size. In *H2.4,* I assume a positive effect of the interaction term between *REVIEW* and *ASSETS* in the *A_FEE*-model. In this case, a high quality corporate governance structure leads to a demand of high audit quality, i.e. the review decision is just one part of an overall high demand of audit services. The *REVIEW*ASSETS* interaction indicates a significant positive size-review-effect on audit fees (*A_FEE*; coef.: 0.047*; *t-value*: 1.42). Therefore, the review decision – as a proxy for high quality corporate governance – affects the audit fees positively for large firms (Zaman et al., 2011). This result supports *H2.4* and provides additional evidence of a positive relation between high governance quality and audit fees. For the control variables the results stay qualitatively comparable to *Model 2.1*.

Additionally, I point out the negative relation at a 1%-level of *REVIEW* and audit fees in Table 2.6, column 1, which supports *H2.2*. By comparing the audit fee model with and without interaction terms, negative signs for the coefficients of *REVIEW* on audit fees can be observed, but only a significant influence for *Model 2.2*. Following these findings I cannot reject *H2.2* and control for different size effects in the sensitivity analysis.

Table 2.5: Testing the Association between Audit Fees and Interim Reviews

	Model *A_FEE*		Model *AR_FEE*		Model *A_AR_FEE*	
	Exp. sign	Coef. *(t-value)*	Exp. sign	Coef. *(t-value)*	Exp. sign	Coef. *(t-value)*
REVIEW	-	-0.050	+	5.727***	+	0.135**
		(-0.61)		*(17.46)*		*(1.63)*
ASSETS	+	0.515***	+	1.077***	+	0.528***
		(26.19)		*(6.99)*		*(27.99)*
ROA	-	-0.613***	-	-2.143**	-	-0.698***
		(-2.57)		*(-1.66)*		*(-2.82)*
LEV	+	-0.184	+	0.767	+	-0.169
		(-1.10)		*(0.49)*		*(-0.99)*
CUR_RAT	-	-0.048**	-	0.094	-	-0.043**
		(-2.20)		*(0.73)*		*(-1.92)*
AR_INV	+	-0.099	+	1.845**	+	-0.078
		(-0.62)		*(2.17)*		*(-0.49)*
N_SEG	+	0.047***	+	0.215*	+	0.046***
		(2.51)		*(1.94)*		*(2.45)*
M/B	+	0.029**	+	0.156*	+	0.033***
		(2.13)		*(1.57)*		*(2.47)*
PRIME	+	0.11*	+	-0.552*	+	0.105*
		(1.48)		*(-1.36)*		*(1.37)*
YEAREND	+	-0.018	-	-0.273	+	-0.026
		(-0.24)		*(-0.46)*		*(-0.34)*
AUDCHG	-	-0.022	-	-0.962**	-	-0.051*
		(-0.57)		*(-2.20)*		*(-1.48)*
BIG4	+	0.109**	+	0.558*	+	0.115**
		(2.02)		*(1.21)*		*(1.99)*
AC	+	0.093*	+	0.447	+	0.105**
		(1.65)		*(0.87)*		*(1.84)*
BLOCK_0_10	+	0.130**	+	0.681*	+	0.131**
		(1.89)		*(1.56)*		*(1.86)*
BLOCK_10_25	+	0.111**	+	0.511*	+	0.127**
		(1.75)		*(1.33)*		*(2.01)*
BLOCK_25_50	+	0.155***	+	0.440	+	0.168***
		(2.67)		*(0.95)*		*(2.72)*
Constant	?	2.185***	?	-17.886***	?	2.004***
		(6.08)		*(-7.65)*		*(5.62)*
Adj. R2		0.814		0.405		0.823
F		165.15		81.45		180.93
p		*0.000*		*0.000*		*0.000*
Number of Obs.		1,023		1,023		1,023

Notes: This table shows the results of the audit fee, audit-related fee and audit plus audit-related fee models. In all OLS regressions, robust standard errors are estimated using the Petersen (2009) procedure, with two-way clustering (firm and year) for lack of independence of observations. All regressions include industry-level fixed effects, with industry definitions corresponding to the 12 groups of SIC codes by Fama and French (2008). Variables are defined in Table 2.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level when the expected sign is positive or negative.

Table 2.6: Testing the Association between Audit Fees and Interim Reviews
– Interaction Terms included

		Variables				Variables*REVIEW		
		A_FEE	AR_FEE	A_AR_FEE		A_FEE	AR_FEE	A_AR_FEE
	Exp.	Coef.	Coef.	Coef.	Exp.	Coef.	Coef.	Coef.
	sign	(t-value)	(t-value)	(t-value)	sign	(t-value)	(t-value)	(t-value)
REVIEW	-/+/+	-1.825***	21.716***	-1.397**				
		(-3.20)	(8.84)	(-2.42)				
ASSETS	+/+/+	0.496***	1.265***	0.511***	+/-/?	0.047*	-0.802***	0.032
		(22.32)	(7.10)	(23.43)		(1.42)	(-4.75)	(0.93)
ROA	-/-/-	-0.545**	-2.529**	-0.639***	?	-0.762**	1.820	-0.712**
		(-2.20)	(-1.69)	(-2.53)		(-2.11)	(0.76)	(-2.14)
LEV	+/+/+	-0.232*	0.742	-0.194	?	0.402	-0.938	0.205
		(-1.36)	(0.41)	(-1.09)		(1.02)	(-0.36)	(0.54)
CUR_RAT	-/-/-	-0.047**	0.119	-0.041**	?	-0.067*	-0.215	-0.070*
		(-2.07)	(0.87)	(-1.79)		(-1.81)	(-1.35)	(-1.87)
AR_INV	+/+/+	-0.104	1.502*	-0.097	?	0.419	2.531*	0.550*
		(-0.58)	(1.58)	(-0.57)		(1.34)	(1.89)	(1.91)
N_SEG	+/+/+	0.045**	0.218**	0.045**	?	0.078*	-0.085	0.069
		(2.21)	(1.76)	(2.19)		(1.72)	(-0.57)	(1.50)
M/B	+/+/+	0.032**	0.169*	0.035***	?	-0.036	-0.237*	-0.041
		(2.25)	(1.48)	(2.48)		(-1.50)	(-1.73)	(-1.56)
PRIME	+/+/+	0.116*	-0.705*	0.106*	?	-0.048	1.679***	-0.001
		(1.53)	(-1.55)	(1.35)		(-0.43)	(3.23)	(-0.01)
YEAREND	+/-/+	-0.039	-0.261	-0.046	?	0.209*	-0.329	0.179
		(-0.49)	(-0.39)	(-0.58)		(1.94)	(-0.41)	(1.55)
AUDCHG	-/-/-	-0.031	-1.042**	-0.065***	?	-0.026	1.107	0.027
		(-0.86)	(-2.09)	(-2.52)		(-0.09)	(1.18)	(0.09)
BIG4	+/+/+	0.102**	0.494	0.106**	?	0.241	0.446	0.303
		(1.86)	(1.00)	(1.85)		(1.30)	(0.66)	(1.61)
AC	+/+/+	0.095*	0.319	0.101*	?	0.215*	0.212	0.266**
		(1.51)	(0.56)	(1.59)		(1.70)	(0.28)	(2.14)
BLOCK_0_10	+/+/+	0.113*	0.84*	0.113*	?	0.065	-0.978	0.075
		(1.56)	(1.52)	(1.49)		(0.42)	(-1.61)	(0.41)
BLOCK_10_25	+/+/+	0.083*	0.672*	0.103**	?	0.126	-1.104**	0.117
		(1.34)	(1.55)	(1.72)		(0.89)	(-2.09)	(0.84)
BLOCK_25_50	+/+/+	0.137**	0.534	0.146**	?	0.059	-0.449	0.097
		(2.21)	(0.97)	(2.14)		(0.46)	(-0.65)	(0.68)
Constant	?	2.588***	-21.237***	2.355***				
		(6.64)	(-7.89)	(6.15)				
Adj. R2		0.819	0.408	0.827				
F		34.74	84.55	142.22				
p		0.000	0.000	0.000				
Number of Obs.		1,023	1,023	1,023				

Notes: This table shows the results of the audit fee, audit-related fee and audit plus audit-related fee models including interaction terms (variables*REVIEW). In all OLS regressions, robust standard errors are estimated using the Petersen (2009) procedure, with two-way clustering (firm and year) for lack of independence of observations. All regressions include industry-level fixed effects, with industry definitions corresponding to the 12 groups of SIC codes by Fama and French (2008). Variables are defined in Table 2.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level when the expected sign is positive or negative.

2.5.3   Multivariate Results – Earnings Quality Model

Table 2.7 presents the results of the multivariate regression of the relationship between review services and quarterly earnings quality. To test *H2.5* and *H2.6* the earnings quality model on a quarterly basis is estimated by including the variables *Q2_REVIEW*, *Q4_REVIEW* and *Q4*. I run *Model 2.4* for absolute (*Q_JM_ABS)*, only positive (*Q_JM_POS)* and only negative (*Q_JM_NEG)* discretionary accruals measured by the 'unmodified' Jones model with a control for firm performance. The included firm-quarter observations vary from 2,452 for absolute discretionary accruals to 1,207 and 1,245 for positive and negative discretionary accruals, respectively. For all multivariate models, I use two-way clustering by Petersen (2009) comparable to the audit fee models. The overall explanatory power of the three variations is weak, but in line with results in the literature (Yang and Krishnan, 2005).

Hypothesis 2.5 predicts a positive effect of a review purchase on earnings quality in the respective quarter. I assume a negative relation between aggressive earnings management and *Q2_REVIEW* as well as a positive relation between conservative earnings management and *Q2_REVIEW*. The negative expected effect on the absolute values of discretionary accruals can be seen as a combination of both influences. In each case in Table 2.7 the variable *Q2_REVIEW* shows no economically and statistically significantly impact on the accrual measures. Therefore, I reject *H2.5*. The predicted influence on the year-round reporting quality, *H2.6*, is not observable for the absolute and positive discretionary accruals. Only for earnings decreasing accounting behavior do I observe a slightly positive significant effect. To sum up, the results indicate no or only a weak earnings quality effect of interim reviews on the respective quarter and the year-round reporting quality.

Regarding the control variables, the earnings management in the last quarter (*Q4*) is higher at a 1% significance level and the existence of an audit committee (*AC*) mitigates earnings management. A high level of leverage prevents decreasing earnings management significantly. Leverage disciplines management or management does not want to report negatively managed earnings to the external debt suppliers.

Table 2.7: Testing the Association between Earnings Quality and Interim Reviews

	Exp. sign	Q_JM_ABS Coef. (t-value)	Q_JM_POS Coef. (t-value)	Q_JM_NEG Coef. (t-value)
Q2_REVIEW	-/-/+	-0.001	-0.002	-0.001
		(-0.40)	(-0.33)	(-0.15)
Q4_REVIEW	-/-/+	-0.002	0.000	0.005*
		(-1.03)	(-0.05)	(1.31)
Q4	+/+/-	0.008***	0.005***	-0.012***
		(8.64)	(3.00)	(-5.27)
ASSETS	-/-/+	-0.001	-0.001	0.001*
		(-0.96)	(-0.57)	(1.28)
ROA	-/-/+	-0.012	-0.009	0.013
		(-1.19)	(-0.62)	(0.76)
LEV	-/-/+	-0.009	0.001	0.017**
		(-1.24)	(0.13)	(1.92)
AC	-/-/+	-0.006***	-0.007**	0.008***
		(-2.61)	(-1.92)	(2.64)
BIG4	-/-/+	0.002	0.003	-0.003*
		(0.90)	(0.99)	(-1.35)
Constant	?	0.047***	0.049**	-0.053***
		(4.09)	(2.37)	(-4.13)
Adj. R2		0.058	0.044	0.061
F		13.280	6.921	6.795
p		0.000	0.000	0.000
Number of Obs.		2,452	1,207	1,245

Notes: This table shows the results of the quarterly earnings quality model. In all OLS regressions, robust standard errors are estimated using the Petersen (2009) procedure, with two-way clustering (firm and year) for lack of independence of observations. All regressions include industry-level fixed effects, with industry definitions corresponding to the 12 groups of SIC codes by Fama and French (2008). Variables are defined in Table 2.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level when the expected sign is positive or negative.

2.5.4 *Sensitivity Analysis*

In this section the results of additional calculations and modifications are provided. I designed additional regressions to examine the robustness and sensitivity of the results and rule out potential alternative explanations. First, a matched pair sample is defined to control for a possible self-selection bias. Second, additional results for the audit fee models are provided and, third, I rerun the earnings quality models including further modifications.

The decision to produce and purchase a voluntary review depends on the cost-benefit-relation. Firms that voluntarily opt to purchase a review are those for which the expected benefits are higher than its incremental costs. Hence, firms are not randomly assigned. Various studies mention that (timely) reviewed interim financial statements provide more reliable information and a greater market reaction (Ettredge et al. (2000); Haenelt (2009); Haw et al. (2008); Manry et al. (2003)). In each of these studies the authors do not control for a possible self-selection bias and, ex ante, different firm characteristics. To verify that the results are not due to this selection bias, I re-perform the audit fee and earnings quality analyses on matched pair samples. The two groups are selected on their propensity score and fiscal year. The underlying logistic model includes variables previously discussed in the literature (Chow (1982); Ettredge et al. (1994); Mangena and Tauringana (2008)):

$$REVIEW_{i,t} = \beta_0 + \beta_1 ASSETS_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LEV_{i,t} + \beta_4 N\_SEG_{i,t} + \beta_5 LEV_{i,t} + \beta_6 AC_{i,t} + \beta_7 BIG4_{i,t} + \beta_8 FREEFLOAT_{i,t} + \varepsilon_{i,t} \qquad (2.5)$$

Table 2.1 provides detailed definitions of all variables. The included independent variables are proxies for size, complexity, profitability, corporate governance quality, ownership and financial structure. Table 2.8, Panel A presents the pooled results of the logistic regression model, which differs only slightly from the annual results. *SIZE*, *LEV* and *AC* show a positive influence on the review decision. The results for *LEV* as a proxy for external agency costs (Ettredge et al., 1994) and *AC* for a high quality corporate governance system (Mangena and Tauringana, 2008) are in line with the literature. *ROA* and *N_SEG* affect the review market negatively. The latter can be used as a proxy for complexity and audit difficulty, which should increase the price

and, thus, mitigate the demand. *BIG4* and *FREEFLOAT* do not show a significant association with the review decision.

Table 2.8, Panel B and C provide the sensitivity analysis for the audit fee models. In Panel B the association between audit and audit-related fees and the interim review for different subsamples is tested. Only fractions of the results for the variable *REVIEW* are tabulated. I rerun *Model 2.1* for the matched sample, for firms with total assets bigger (smaller) than the median of the total sample and for firms that established an audit committee. These subsamples are chosen to control for the overall self-selection effect, a possible nonlinearity in size and the influence of corporate governance quality. The results provide additional evidence of the effect of a review decision on the sum of audit and audit-related fees (*A_AR_FEE; H2.1*) and audit fees (*A_FEE; H2.2*). For the 'big' and the 'audit committee' subsample– comparable to the total sample – a positive significant relation with *A_AR_FEE* is observable. The highest observable impact occurs for the '*AC*'-subsample (coef.: 0.195**; *t-value*: -2.32; increase of 21,53% of *A_AR_FEE*). The results of the matched subsample show that the effect on *A_AR_FEE* is still positive (5.65%), but insignificant. The audit fee impact of the review decision is contrary. For the matched, 'small' and 'low corporate governance quality' subsample the audit fees decline for reviewed firms, supporting *H2.2*. Following these findings, there is a possible work shift from the year-end audit to the semi-annual period after controlling for the self-selection bias. Especially for 'small' and 'low corporate governance quality' firms I observe this relation. For these companies the semi-annual auditor review affects the year-round audit process.

Including interaction terms in the audit fee model, Panel C provides the results of the total and matched sample. The decreasing incremental audit-related fee hypothesis (*H2.3*) still holds after the matching process. According to hypothesis 2.4 – the positive effect of the review decision on audit fees with increasing size – is not significant after the matching procedure.

To control for unobservable variation in the fee variables resulting from additional audit-related services, I rerun *Model 2.1* only for firms disclosing audit-related fees which are not zero. The mean value of audit-related fees divided by size is 0.0214% for the reviewed sample of 150 observations and 0.0212% for the non-reviewed sample of 357 observations. Despite the marginal difference, the variable *REVIEW* still shows a

negative effect on *A_FEE* (coef.: -0.129* *; t-value: -0.162*) and a positive effect on *AR_FEE* (coef.: 0.896*** ; *t-value: 5.710*). The result for the *A_AR_FEE*-model is not significant (coef.: -0.014 ; *t-value: -0.181;* not tabulated).

Furthermore, *ASSETS* is substituted by the logarithm of market capitalization and employees, *LEV* by long-term debt, *N_SEG* by the number of geographic segments and *ROA* by net operating income deflated by total assets. I re-perform *Model 1* including firms with joint audit and firms, which purchased first and third quarter reviews. For the *AR_FEE*-model *AR_INV* is excluded to verify the assumption that these accounts should not affect the review work. The results do not differ qualitatively.

Table 2.8, Panel D provides the sensitivity analysis of the quarterly earnings quality model. The multivariate analysis for the matched pair observations is provided and an additional control for firm performance in the discretionary accrual model (*Q_UJM*) is included to check the robustness of the results. In both cases, there is no significant impact of auditor involvement in the interim reporting process and an improvement of earnings quality (*Q2_REVIEW*). The significant effect of *Q4_REVIEW* on negative discretionary accruals disappears for the matched sample.

As additional robustness checks, I regress the earnings quality model only for observations of the second quarter, without the fourth quarter and include the dropped observations, which purchased a review also in the first and third quarter. Over all regressions, no evidence of a relation between an interim review and earnings quality is observable. I therefore reject the hypotheses that auditor reviews of interim financial statements affect quarterly earnings quality.

Table 2.8: Sensitivity Analysis

Panel A: Correcting for Self-selection – Matched Sample Approach

logit (*REVIEW*=1)	Exp. sign	Coef. (*t-value*)
ASSETS	+	0.412***
		(6.23)
ROA	+	-1.992**
		(-1.85)
LEV	+	1.205**
		(2.01)
N_SEG	-	-0.287***
		(-3.09)
AC	+	0.743***
		(2.81)
BIG4	+	0.157
		(0.61)
FREEFLOAT	+	0.002
		(0.49)
2008	?	0.664**
		(2.17)
2009	?	0.615**
		(2.01)
2010	?	0.968***
		(3.16)
Constant	?	-10.762***
		(-9.24)
McFadden R2		0.169
Chi2		144.219
p		*0.000*
Number of Obs.		1,023

Panel B: Testing the Association between Audit Fees and Interim Reviews

Sample	Number of Obs. (reviewed)	Variable	Exp. sign	A_FEE Coef. (*t-value*)	AR_FEE Coef. (*t-value*)	A_AR_FEE Coef. (*t-value*)
Total	1023 (150)	*REVIEW*	-/+/+	-0.050	5.727***	0.135*
				(-0.61)	*(17.46)*	*(1.63)*
Matched	286 (143)	*REVIEW*	-/+/+	-0.124**	4.720***	0.055
				(-1.95)	*(10.68)*	*(0.81)*
Size (>median)	512 (117)	*REVIEW*	-/+/+	-0.029	5.192***	0.154*
				(-0.31)	*(10.61)*	*(1.59)*
Size (<median)	511 (33)	*REVIEW*	-/+/+	-0.171*	6.785***	0.019
				(-1.42)	*(13.86)*	*(0.16)*
AC (=1)	532 (123)	*REVIEW*	-/+/+	0.005	5.236***	0.195**
				(0.06)	*(10.66)*	*(2.32)*
AC (=0)	491 (27)	*REVIEW*	-/+/+	-0.332**	7.274***	-0.161
				(-2.46)	*(16.62)*	*(-1.25)*

Panel C: Testing the Association between Audit Fees and Interim Reviews –

Interaction Terms included

	Exp. sign	Total Sample			Matched Sample		
		A_FEE	AR_FEE	A_AR_FEE	A_FEE	AR_FEE	A_AR_FEE
		Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
		(t-value)	*(t-value)*	*(t-value)*	*(t-value)*	*(t-value)*	*(t-value)*
REVIEW	-/+/+	-1.825***	21.716***	-1.397**	-0.69	20.728***	0.098
		(-3.20)	*(8.84)*	*(-2.42)*	*(-0.88)*	*(3.42)*	*(0.11)*
ASSETS	+/+/+	0.496***	1.265***	0.511***	0.501***	1.466***	0.531***
		(22.32)	*(7.10)*	*(23.43)*	*(15.47)*	*(5.56)*	*(16.07)*
ASSET REVIEW*	+/-/?	0.047*	-0.802***	0.032	0.024	-0.975***	-0.009
		(1.42)	*(-4.75)*	*(0.93)*	*(0.54)*	*(-3.94)*	*(-0.18)*
Adj. R2		0.819	0.408	0.827	0.862	0.530	0.864
F		134.7	84.5	142.2	74.0	19.4	72.0
p		*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Obs.		1,023	1,023	1,023	286	286	286

Panel D: Testing the Association between Earnings Quality and Interim Reviews

Sample	Variable	Exp. sign	Q_JM_ABS	Q_JM_POS	Q_JM_NEG
			Coef.	Coef.	Coef.
			(t-value)	*(t-value)*	*(t-value)*
Total	Q2_REVIEW	-/-/+	-0.001	-0.002	-0.001
			(-0.40)	*(-0.33)*	*(-0.15)*
	Q4_REVIEW	-/-/+	-0.002	0.000	0.005*
			(-1.03)	*(0.05)*	*(1.31)*
	Q4	+/+/-	0.008***	0.005***	-0.012***
			(8.64)	*(3.00)*	*(-5.27)*
	Number of Obs.		2,452	1,207	1,245
Matched	Q2_REVIEW	-/-/+	0.000	-0.002	-0.001
			(0.15)	*(-0.40)*	*(-0.11)*
	Q4_REVIEW	-/-/+	-0.003	-0.004	0.001
			(-0.65)	*(-0.68)*	*(0.13)*
	Q4	+/+/-	0.009**	0.008*	-0.008*
			(2.48)	*(1.64)*	*(-1.35)*
	Number of Obs.		827	419	408
Total (Q_UJM)	Q2_REVIEW	-/-/+	0.000	-0.004	-0.004
			(0.06)	*(-0.78)*	*(-0.83)*
	Q4_REVIEW	-/-/+	-0.002	0.001	0.006*
			(-0.98)	*(0.34)*	*(1.32)*
	Q4	+/+/-	0.007***	0.004**	-0.011***
			(7.80)	*(2.23)*	*(-5.57)*
	Number of Obs.		2,452	1,213	1,239

Notes: This table shows the results of the sensitivity analyses. Panel A provides the results of the pooled logistic regression model which is used to build the matched sample. Panel B, C and D shows fractions of the results of *Model 2.1, 2.2* and *2.4* using different samples. Variables are defined in Table 2.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level when the expected sign is positive or negative.

2.6   Conclusions

The European Parliament decided against a mandatory interim review rule in the EU by releasing the Directive 2004/109/EC. Each nation had the chance to integrate a mandatory or voluntary interim review system until 2007. In Germany, the legislator introduced a voluntary interim review rule and the mandatory disclosure of the review report or a negative statement otherwise. Further changes to the interim reporting process like the extension of the enforcement system or the introduction of an auditor liability cap for interim reviews leads to an increase in the review market from 0.8% reviewed firms in 2006 to 16.7% in 2010 for a sample of 1,260 firm-year observations. The increase in reviews and the classification of review costs in audit-related fees in Germany give us the opportunity to extract the cost factors in detail and provide evidence of possible benefits on earnings quality.

Using an audit fee model, I split the disclosed fees in audit fees (excluding the review costs), audit-related fees (including the review costs) and the sum of both. In this model an average increase of around 14.5% of the sum of audit and audit-related fees (total fee effect) is observable. This is the first evidence of declining audit fees for a matched sample and for a 'small' firm subsample. The combined effect of size and review on audit-related fees shows lower incremental costs with increasing size. The impact on audit fees is slightly positive. The benefits of a review on earnings quality on a quarterly basis – using an 'unmodified' Jones model controlling for performance to measure unexpected accruals as an earnings management proxy – provide no effects on interim earnings quality.

My contributions to the literature are threefold: First, I provide evidence of higher average billed fees of 14.5% of 'reviewed' in comparison to 'non-reviewed' firms listed in Germany. This fee increase is highly affected by size and corporate governance quality. Second, a decrease of year-end audit fees is observable for 'small' and 'low governance quality' firms. In this subsample the amount of total billed fees increase with the lowest rate. The findings show that these firms have low additional costs and an extension of the audit process over the whole financial year. As a third contribution, I do not find an effect on the interim earnings quality. Therefore, the benefits can be a due diligence service to mitigate agency costs ('high quality corporate governance firms')

or/and an improvement of the year-around reporting process ('low quality corporate governance firms').

Overall, the topic of voluntary external audit or review services needs further research and the results provide evidence for standard setters: The cost-benefit-relation differs between firm size, corporate governance quality and the reporting process development.

3 The Effect of the Error Announcement Risk on the Demand for Voluntary Interim Auditor Reviews

Abstract

This study investigates the effect of the error announcement risk on the demand for voluntary interim auditor reviews. Material changes in the German legal environment in 2007 introduced an enforcement system for semi-annual financial reports. The demand for voluntary semi-annual reviews increased significantly from 0.8% in 2006 to 14.6% in 2007 and increased further to 19.5% until 2010 for a sample of 1,278 firm-year observations. This study addresses the question whether the enforcement structure and the resulting error announcement risk exposure have an influence on voluntary external monitoring. After controlling for agency costs, the corporate governance structure, and selected review cost factors, results of a logistic regression analysis show a positive influence of error announcement risk on the likelihood of engaging an auditor to review the semi-annual interim report. The findings contribute to the literature by demonstrating that the quality of the enforcement system and the risk of error findings influence the review decision of the board of directors positively.

Co-author: Hansrudi Lenz

3.1   Introduction

By introducing the Directive 2004/109/EC about the 'harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market' the European Parliament implemented comparable rules of financial reporting all over Europe. In terms of an auditor review of interim financial reports, the EU legislator decided against a European wide harmonisation and delegated this decision to the member states. Each country decided in favour of a voluntary or mandatory interim auditor review rule. For example, France introduced a mandatory interim review rule comparable to the US or Australia; Germany opted in favour of a voluntary interim review decision (e.g. as in Canada or the UK). The decision of the European Parliament to introduce this option counteracts the efforts of financial information harmonisation in the EU. Also, a contrary discussion about the introduction of a mandatory or voluntary review rule in Germany raises the question about the demand of voluntary review services and a possible benefit by introducing a mandatory rule requirement. Therefore, the drivers of the demand as well as its effects should be investigated more precisely to get a better understanding and improve the harmonization of accounting and auditing rules in Europe or worldwide.

In the previous literature the demand for a (timely) review service from an auditor is related to internal and external agency costs (Chow (1982); Ettredge et al. (1994)) and the corporate governance structure (Mangena and Tauringana, 2008) of the reporting firm. Firms with a higher level of agency costs have a greater benefit from engaging an auditor's review. With respect to the corporate governance structure, higher audit committee quality positively affects the demand for review services. On the supply side, the auditor provides review services depending on its pricing function (Ettredge et al. (1994); Bédard and Courteau (2010)). Other studies investigate the effect of (timely) voluntary interim reviews on capital market reactions (Manry et al. (2003); Alves and Teixeira Dos Santos (2008)), the information content of interim financial statements (Haenelt, 2009), the quality of the year-round reporting process (Ettredge et al. (2000); Ettredge and Simon (2000); Boritz and Liu (2006)) and the interim earning quality (Bandyopadhyay et al. (2007); Bédard and Courteau (2010)). These studies show that reviewed companies release information that is more timely, more complete and accurate, and has a stronger capital market reaction. With respect to earnings quality improvements

the results provide only weak evidence. Bandyopadhyay et al. (2007) state that the voluntary review engagement provides value as a signaling mechanism for high quality interim statements.

In 2007, the Transparency Directive Implementing Act (TDIA; Transparenzrichtlinie-Umsetzungsgesetz) came into force in Germany and implemented the EU-Directive 2004/109/EC in German law. Until 2007 a voluntary review of semi-annual interim reports in Germany was a very rare event. Based on a sample of 1,278 firm-year observations we observed a sharp increase from 0.8% to 14.6% in voluntary semi-annual reviews between the years 2006 and 2007 up to 19.5% in 2010. Reviews of the first and third quarter interim report after the TDIA are still a rare event (3.0% in 2010). The TDIA expanded the enforcement actions of the German Financial Enforcement Panel (Deutsche Prüfstelle für Rechnungslegung) on semi-annual financial reports. This legal change introduced for the first time an error announcement risk – the risk of error findings by the German Financial Enforcement Panel and its subsequent mandatory publication by the respective firms – for semi-annual reports. This adverse disclosure ('name and shame'; Hitz et al. (2012), p. 253) as a central sanctioning mechanism of the German enforcement system can lead to various negative effects for firms and its board of directors (Desai et al. (2006); Ernstberger et al. (2012b); Feroz et al. (1991); Palmrose et al. (2004); Srinivasan (2005)). The involvement of an auditor in the semi-annual reporting process – in our case the demand for a voluntary auditor review – may signal a diligent interim reporting process and could shift risk to the auditor. Therefore, we investigate the effect of the error announcement risk on the demand for voluntary semi-annual auditor reviews. To our knowledge, we are the first to extend existing findings in the literature by including error announcement risk aspects.

For 1,030 firm-years from 2007 to 2010 we use a logistic regression model with firm-level clustering to extract the influence of error announcement risk on the demand for voluntary reviews. Following Jones et al. (2008) and Dechow et al. (2011) we use discretionary accruals – measured by the Dechow-Dichev-Model (Dechow and Dichev, 2002) and the Modified-Jones-Model (Dechow and Sloan, 1995) – as risk proxies for a high likelihood of error findings, e.g. a high error announcement risk. In addition, we investigate the influence of agency costs and corporate governance quality on the review decision. As additional analysis we match and cluster our sample to extract the size,

profitability, and listing effects. In further robustness checks we substitute the error announcement risk proxy with three further (discretionary) accrual measures, use the first-time review decision period only, and provide additional evidence for our agency cost hypothesis. To control for the appropriateness of our model we also use a logistic regression model with two-way clustering (firm and year) following Petersen (2009).

The results of the multivariate model indicate a significant positive relation between (increasing) earnings management, i.e. higher error announcement risk, and voluntary semi-annual reviews. According to Ettredge et al. (2000), the interim external review improves the internal control structure and the year-round reporting process, but Bédard and Courteau (2010) state that the interim review is not really effective at improving earnings quality. Therefore, the result of high earnings management and a high demand for review do not lead to a contradiction of a review effect on the reporting process. The board of directors of a firm with a high level of earnings management and, thus, a high risk of error findings extends the auditor involvement in the year-round audit process and provides due diligence. For the level of agency costs we also observe a positive relation to the review decision. Corporate governance quality only influences the review decision for companies with earning-decreasing activities. Further positive effects are observable for size and profitability. Review cost drivers, e.g. complexity, affect the review engagement negatively. In the next step, we split the sample into various subsamples and the error announcement risk proxies stay continuously significant and positive. For the agency cost and corporate governance variables the results vary over size, profitability and listing attributes. Agency costs influence the decision for a 'big company' subsample with earnings increasing activities, higher than average profits, and a listing in a liquid market. For a 'big', profitable, earnings-decreasing company the signaling effect is not a driver of the interim review purchase. In this case the corporate governance structure affects the decision.

This study makes two contributions to the literature. First, the error announcement risk can be a driver of voluntary auditor reviews in addition to agency costs, corporate governance factors, and review costs. Second, the question of a mandatory or voluntary review rule seems to be related to the enforcement regime. As shown in the literature, a voluntary review or audit decision can be a signal of high earnings quality (Bandyopadhyay et al. (2007); Lennox and Pittman (2011)); in a country

with a strong enforcement system, the decision of a voluntary review can be a means of providing evidence of due diligence in an effort to mitigate or transfer the risk of error findings, which can lead to a possible misleading expectation of high earnings quality. Therefore, the degree of enforcement affects the demand and the signal of a voluntary audit services.

The remainder of the paper is organized as follows. Section 3.2 outlines the German regulations on interim reporting, especially the new rules which came into force in 2007 via the TDIA. Section 3.3 summarizes the theoretical background of voluntary reviews and develops our hypotheses. Section 3.4 explains our research design and the sample selection process. Section 3.5 provides univariate and multivariate results. Section 3.6 concludes and summarizes our results.

3.2   Legal Background and Effects of the Transparency Directive Implementing Act

The TDIA – an implementation of the Directive 2004/109/EC of the European Parliament – increased the disclosure level of German listed firms for interim and annual reports of financial years beginning after December 31, 2006. The legal change enhanced the enforcement system and the corporate governance structure. In general, Parliament and Council of European Union believe: 'The disclosure of accurate, comprehensive and timely information about security issuers builds sustained investor confidence and allows an informed assessment of their business performance and assets. This enhances both investor protection and market efficiency' (Directive 2004/109/EC, No.1). In the following exposition of the legal background in Germany, we focus on the interim reporting process of companies listed in the Prime Standard at the Frankfurt Stock Exchange, which must comply with high international transparency standards. All included companies in our study are listed in the Prime Standard or voluntarily comply with the Prime Standard interim reporting rules, i.e. they are listed in the General Standard and disclose quarterly reports. In all cases - before and after the TDIA - the disclosure of audited annual financial statements in line with IFRS is mandatory.

3.2.1 Interim Reporting

Before the TDIA, issuers of shares listed in the Prime Standard had to prepare and publish quarterly financial reports according to IAS 34 (Section 63 Exchange Rulings Frankfurt Stock Exchange – Börsenordnung Frankfurter Wertpapierbörse, BörsO FWB, 2011). An omission of, late, incorrect, or incomplete publication of semi-annual reports could be punished with an administrative fine up to €100,000 according to Section 62 (1) No. 4 of the Stock Exchange Law (Börsengesetz – BörsG). But in general, a strong enforcement of the rules did not exist and no criminal sanctions could be applied. According to Section 54 (3) of the Listing Application Decree (Börsenzulassungs-Verordnung – BörsZulV) an issuer could voluntarily decide in favor of an interim audit or review; if an audit or review had been realized the respective report had to be included in the interim report but otherwise no explicit negative statement was required. In the case of a voluntary interim review there was no liability cap with respect to negligence of the auditors.

With the TDIA, the regular reporting to the public was restructured and extended. For the interim reporting process the German Accounting Standards stated that this legal introduction 'represents a comprehensive revision of the statutory requirements in Germany to prepare and publish interim financial reports' (German Accounting Standard No. 16 (GAS 16), Summary). Detailed requirements governing the contents of (consolidated) semi-annual financial reports are stipulated in Section 37w and 37y of the German Securities Trading Act (Wertpapierhandelsgesetz – WpHG). Extending IAS 34, the German legislative introduced an interim management report for semi-annual reports. This report 'shall include at least an indication of important events that have occurred during the first six months of the financial year, and their impact on the condensed set of financial statements, together with a description of the principal risks and uncertainties for the remaining six months of the financial year' (Article 5 (4) Directive 2004/109/EC; Section 37w (4) sentence 1 WpHG). An additional component in the semi-annual financial reports since 2007 shall be a management responsibility statement required by Sections 37w (2) No. 1 (for interim financial statements) or 37y No. 3 WpHG (for consolidated interim financial statements). In the case of an incorrect responsibility statement by management, criminal law sanctions (imprisonment and/or fines) according to Section 331 No. 3a German Commercial Code (Handelsgesetzbuch – HGB) are

possible (Hutter and Kaulamo, 2007). According to Waßmer (2011) the possible law sanction for an incorrect responsibility statement is controversial. Additionally, the omission of, late, incorrect or incomplete publication of semi-annual reports could be punished with an administrative fine up to €200,000 according to Section 39 (4) WpHG.

3.2.2   *Enforcement Environment*

These criminal law sanctions are reinforced by the introduction of new enforcement rules for interim reports of financial years beginning after December 31, 2006. The German Financial Reporting Enforcement Panel (Prüfstelle für Rechnungslegung) shall examine whether the last published condensed financial report and the associated management report comply with the legal requirements, including national and international accounting principles (i.e. HGB, IFRS). With respect to interim financial reports the Financial Reporting Enforcement Panel conducts its examinations if there are indications of an infringement or at the request of the Federal Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht – BAFin, see Section 342b (2) sentences 1,4 HGB). The company concerned is not obliged to cooperate with the Enforcement Panel but in this case the Enforcement Panel will inform the BAFin, which has the authority to conduct a formal investigation. If the examination done by either the Enforcement Panel or the BAFin indicates that the interim report contains errors, the concerned company is obliged to disclose the findings.

The German Financial Reporting Enforcement Panel took up its task for annual reports in 2005 and for interim reports in 2007. Since then it released an error rate of 24%, i.e. in 735 examinations they found 174 material errors, including 23 errors in semi-annual reports (all numbers as of 12/31/2011, DPR (2012)). The introduction of the enforcement panel is a topic in various studies (Böcking et al. (2012); Ernstberger et al. (2012a); Ernstberger et al. (2012b); Ernstberger and Vogler (2008); Hitz et al. (2012)). These studies have found effects of the new enforcement system on stock liquidity, firm valuation and earnings quality. Overall, they showed that the enforcement structure in Germany is recognized by the market and has improved the quality of financial reporting.

3.2.3   *Interim Auditor Reviews*

The scope of a review is determined by the standard on auditing 900 (IDW PS 900) released by the German Institute of Auditors and the International Standard on Review Engagements (ISRE) 2410 for the statutory auditor: 'Procedures for performing a review of interim financial information are ordinarily limited to making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures' (ISRE 2410 No. 20). Section 37w (5) WpHG offers the possibility of a voluntary auditors' review or an audit of the semi-annual financial report. In this case, the auditors' audit or review report must be included in the semi-annual financial report. Section 37w (5) sentence 6 WpHG requires that if the semi-annual report has not been audited or reviewed, the company must provide a note that the semi-annual financial statements have neither been audited nor reviewed by an auditor. For reviews of interim reports after 2006 the TDIA introduced a liability cap for the auditor. The legal change excludes liabilities to third parties, e.g. shareholders or creditors. In the case of negligent behavior, e.g. violation of auditing standards or ethical rules, the liability with respect to the audited company (audit client) is limited to € 4 million (Section 37w (5) Sentence 7 WpHG with reference to Section 323 (2) HGB)).

The German corporate governance system is characterized by its two-tier board structure. The 'managerial board' is responsible for the management of the company (including the reporting systems and the financial statements) and the 'supervisory board' is responsible for the monitoring of the managerial board. According to Section 37w (5) WpHG the rules for the appointment of the auditor for annual audits shall be applied for audits or reviews of semi-annual reports. That means, according to the two-tier board structure, the supervisory board recommends an auditor for the review of semi-annual reports and the shareholders elect the auditor at their annual general meeting (Section 119 (1) No. 3 AktG (Public Companies Act, Aktiengesetz); Section 124 (3) Sentence 2 AktG; 318 (1) HGB). Subsequently, the supervisory board is responsible for negotiating the contract with the elected auditor (Section 111 (2) AktG). Therefore, at least according to the legal rules the supervisory board plays a decisive role with respect to the appointment of the auditor for a voluntary review. However, in the legal literature there is a discussion if – irrespective of the rights of the supervisory board and the shareholders – the basic decision of whether a voluntary review of semi-annual reports should be performed or not

is one of the rights of the management board. From the outside it is not clear who (management or supervisory board) initiates this decision. We assume that in German practice it is a joint decision of these two boards (Wagner, 2007).

3.3 Literature Review and Hypotheses Development

3.3.1 Voluntary Audit and Review Services

The decision to produce and purchase a voluntary review or audit service depends on the cost-benefit-relation of the supply-side (auditor) and the demand-side (company, e.g. board of directors, shareholders, and bondholders).

On the supply side, a voluntary review is provided if the review costs are exceeded by the obtainable review fees. Following the audit fee literature, the components of the auditor's pricing function are affected by review costs and 'an expected liability loss' (Simunic and Stein (1996), p. 121; Beatty (1993); Simunic (1980); see the meta-analysis by Hay et al. (2006) and Hay (2012)). The limited review process in comparison to a full audit makes it difficult to transfer the audit fee literature in an analogous manner. On the other hand, the procedures for a review are considered in a year-end audit and should be related to audit fee drivers. Bédard and Courteau (2010) observe 19% higher audit fees for companies in Canada which decided to purchase a voluntary interim review. Krishnan and Zhang (2005) investigate the effect of auditor litigation risk on voluntary disclosure of formal quarterly review reports. Their findings show a significant negative association between the auditors' litigation risk and the disclosure of a review report. For the litigation component in the pricing function, Marten et al. (2003, p. 615) state - before the German legislator introduced the liability cap in 2007 - that the likelihood of providing an interim review without a liability cap comparable to the audit liability cap is on a low level. The introduction of the limited liability for a review by the TDIA brings relief with respect to the incalculable risk component in the auditor's pricing function.

On the demand side the existing literature focuses mainly on agency costs (Jensen and Meckling, 1976). The degree of information asymmetry combined with

conflicts of interest between principals and agents leads to different levels of agency costs associated with systematic differences in firm characteristics and ownership structures. Companies with a high level of agency costs have a higher benefit from reliable financial information. Chow (1982) investigates the relation between external agency costs and the decision to purchase a voluntary audit. The hypotheses derived from agency theory considerations are tested with respect to the voluntary choice of 165 US listed firms in 1926 to hire an external auditor for the annual report. He finds a positive link between firm size, leverage, number of accounting-based debt covenants and the purchase of external monitoring. An inverse relation is shown for the proportion of manager ownership shares (for further studies see Haw et al. (2008); Lennox and Pittman (2011); Merino et al. (1994)). Ettredge et al. (1994) investigate the decision of US companies to purchase voluntary timely, instead of mandatory retrospective, year-end reviews of their interim reports. They identified three influencing factors: the internal agency costs, the external agency costs and the incremental price of a timely review. Their results indicate that firms with higher internal and external agency costs are more likely to certify the internal control system and financial reports via timely reviews of interim reports. Following this argumentation we expect a positive relation between agency costs and the demand for a voluntary review:

H3.1: The level of agency costs increases the likelihood of a voluntary review of semi-annual interim reports.

Another mentioned influencing factor is the quality of the corporate governance system. According to Lin and Hwang (2010, p. 59) 'the role of the corporate governance structure in financial reporting is to ensure compliance with generally accepted accounting principles (GAAP) and to maintain the credibility of corporate financial statements.' As shown in Beasley et al. (2009) and Krishnan and Visvanathan (2009) effective boards and audit committees improve audit quality and financial reporting. This should decrease agency costs and lower the demand for voluntary audit services. The results of empirical studies are contrary and the literature discusses whether internal and external controls are complements (Abbott et al. (2003); Zaman et al. (2011)) or substitutes (Carey et al. (2000); Jensen and Payne (2003)). For example Zaman et al.

(2011) find that audit committee effectiveness is significantly positively associated with audit and non-audit fees. With respect to voluntary reviews Mangena and Tauringana (2008) investigate the influence of corporate governance quality, i.e. the characteristics of the audit committee, on the decision to engage interim auditor reviews in the UK. Their results show that the likelihood of purchasing an interim review decreases with share ownership by audit committee members and increases with audit committee independence and financial expertise. They conclude that an effective audit committee – hence a high quality corporate governance system – is positively associated with a review of interim reports by an external auditor. In this case the voluntary external review service can be seen as a complement to a high quality corporate governance system.

In the German context, the German Institute of Auditors points out that 'a prerequisite for good corporate governance is that the working relationship between the management board, supervisory board, audit committee and auditor feature a cooperation' (German Institute of Auditors, IDW Position Paper (2012), p. 340). Köhler et al. (2008, p. 115) describe the respective responsibilities as follows: 'the supervisory board has to examine the annual financial statements for which the executive board is responsible. The audit is usually based on the findings of the statutory auditor i.e. the auditor not only contributes to the credibility of financial statements from an external stakeholder perspective but also enhances the monitoring function of the supervisory boards. Consequently, auditor selection, auditor engagement (subsequent to auditor election by the general assembly) and the determination of additional emphasis on specific audit areas are the responsibility of the supervisory board.' With respect to semi-annual interim reports Böcking and Kiehne (2010) argue that the supervisory board is not only responsible for the monitoring of single and group accounts but also for the monitoring of interim reports even if there is no explicit legal requirement. Consequently the authors argue that the supervisory board should recommend a review of semi-annual financial reports. Also the German Corporate Governance Code (2012, 7.1.2) recommends that 'interim financial reports be discussed with the management board by the supervisory board or its audit committee prior to publication'. 80% of a sample of 175 companies listed at the Frankfurt Stock Exchange complied with this recommendation in 2009 (Böcking and Kiehne, 2010). A survey by Häcker (2011) shows that members of

the executive board believe that a review of interim reports increases the confidence of the supervisory board in the numbers and prevents restatements in later periods.

With respect to the German two-tier structure in particular, we assume that internal and external audit and review services are complementary; i.e. we expect a positive relation between the corporate governance quality and the decision to purchase a voluntary review of semi-annual financial statement:

H3.2: Higher corporate governance quality increases the likelihood of a voluntary review of semi-annual interim reports.

3.3.2   Effects of Interim Auditor Reviews and the Error Announcement Risk

The literature investigates the influence of voluntary reviews in different dimensions. With respect to capital market effects Manry et al. (2003) find a strong contemporaneous relation between interim returns and earnings for firms that purchased timely reviews from their auditor (for further studies see Alves and Teixeira Dos Santos (2008); Haw et al. (2008)). For the German market, Haenelt (2009, p. 224) evaluates the information quality of reviewed and non-reviewed IFRS interim reports and finds significantly higher quality for reviewed reports. Ettredge et al. (2000) and Boritz and Liu (2006) address the question of whether interim (timely) instead of retrospective reviews improve the year-round reporting process. Ettredge et al. (2000) observed that switching to a timely review would reduce annual earnings release lags when interim earnings contain unusual components. Boritz and Liu (2006) hypothesize and find that quarterly reports are released more promptly by reviewed firms with a high transparency of information environment. In sum, these studies show a positive effect of interim reviews with respect to the reporting process, but do not control for a possible self-selection bias.

After controlling for self-selection Bandyopadhyay et al. (2007) and Bédard and Courteau (2010) investigate a possible earnings quality difference between reviewed and non-reviewed firms for a Canadian sample. Bédard and Courteau (2010) provide only weak evidence of an association between a review and a lower level of absolute discretionary accruals in the fourth quarter of the reviewed sample, but no effect on the

interim discretionary absolute or signed accruals. Therefore, they cannot demonstrate a direct effect on the quality of interim financial statements. In contrast, the study by Bandyopadhyay et al. (2007) shows a positive impact on earnings quality in the first and the second quarter for the reviewed statements; they state that their 'results provide evidence that the voluntary review engagement has value as a signaling mechanism.' (Bandyopadhyay et al. (2007), p. 2) In this case internal and external controls can be seen as complementary: a high earnings quality company wants to signal this quality to the market by purchasing the voluntary review.

Due to the material legal changes in 2007 the review market in Germany flourished, i.e. the TDIA should have had a positive effect on the demand of voluntary interim reviews. The new legal stipulations enhanced the information content of semi-annual financial reports for financial years beginning after 2007 and improved the enforcement regime in Germany. Both factors should mitigate agency costs and, thus, the review demand should decline. Therefore, the agency cost drivers cannot be the influencing factor for the observable change in the demand for review. The improvement of the enforcement system combined with higher fines and a mandatory responsibility statement increased the error announcement risk (e.g. GAAP violations) for semi-annual reports. The central sanctioning mechanism of the German Financial Reporting Enforcement Panel is the mandatory disclosure of the error findings, the so-called adverse disclosure (the 'name and shame' mechanism; Hitz et al. (2012), p. 253). Besides capital market effects (see Palmrose et al. (2004); Ernstberger et al. (2012b); Hitz et al. 2012), externally identified error findings can increase manager and outside director turnover rates as well as negative reputation and career effects (Desai et al. (2006); Feroz et al. (1991); Srinivasan (2005)).

This increased risk could be mitigated by purchasing a voluntary review mainly for exculpatory reasons. Bandyopadhyay et al. (2007) compare a reviewed Canadian SEC registrant sample that complies with higher regulatory and litigation pressures in the U.S. to a reviewed non-SEC registrant sample. They find a positive relation between a cross-listing in the U.S. and discretionary accruals. 'Thus, SEC registrants that decide to review possibly do so in order to reduce potential litigation costs by providing evidence of due diligence rather than signal high quality to the market' (Bandyopadhyay et al. (2007), p. 7). In this case, a company which is exposed to a high error announcement risk, i.e. a

high quality enforcement system and low earnings quality, demands a review to shift risk partly to the auditor. The low earnings quality is hidden by external controls, which possibly affect the year-round reporting process positively (Ettredge et al. (2000); Boritz and Liu (2006)), but do not mitigate earnings management effectively (Bédard and Courteau, 2010). Therefore, the review purchase can be a signal for ex ante higher earnings quality or can be used to mitigate the error announcement risk.

We assume a positive relation between the error announcement risk and the demand of a voluntary auditor's review. A high risk of error findings resulting from low earnings quality and the resulting potential negative consequences for the company and the board of directors (management and/or supervisory board) leads to an increased review demand. Therefore, we expect to find evidence for the following hypothesis:

H3.3: Higher error announcement risk increases the likelihood of a voluntary review of semi-annual reports.

It is important to mention that we do not necessarily have to assume for *H3.3* that a review of interim reports effectively constrains earnings management in interim and annual reports. Bédard and Courteau (2010, p. 6) show that interim reviews 'are not very effective at mitigating earnings management'. Even if the benefits of voluntary reviews do not materialize, the supervisory board may argue ex post that the board did everything possible to monitor management's financial reporting. In legal terms the board realizes an exculpatory effect in the case of error findings.

Prima facie, it does not seem plausible to assume that management (executive board) is also interested in minimizing the error announcement risk via a voluntary review of interim reports because management is primarily responsible for financial reporting (Sections 91 (1), 93 (1) AktG). If earnings management leads to a risk of misstated interim statements, then management should reduce its earnings management. Secunda facie, even in the case of intentional earnings management, management may also prefer a voluntary but not overly effective review mainly for legitimacy reasons. Taken together, the assumption that reviews of interim reports effectively curb earnings management is not a necessary precondition for *H3.3*.

3.4   Research Design and Data

3.4.1   Voluntary Review Model

To identify the association between firm-level characteristics and the likelihood of firms purchasing a voluntary auditor review of the semi-annual financial statements, we compare the sample of firms that have disclosed a semi-annual review report to the total sample. We use financial variables from the annual financial statement in period *t* and evaluate the influence on the review decision for the semi-annual financial statement in period *t+1*. To test our hypotheses we estimate the following logistic regression model based on different models from the literature (Ettredge et al. (1994); Mangena and Tauringana (2008)):

$$REVIEW_{i,t+1} = \beta_0 + \beta_1 ASSETS_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LEV_{i,t} + \beta_4 AR\_INV_{i,t} +$$
$$\beta_5 N\_SEG_{i,t} + \beta_6 PRIME_{i,t} + \beta_7 BIG4_{i,t} + \beta_8 FREEFLOAT_{i,t} +$$
$$\beta_9 AC_{i,t} + \beta_{10} EM_{i,t} + \sum \gamma_1 Years_t + \sum \gamma_2 Industries_{i,t} + \varepsilon_{i,t} \qquad (3.1)$$

Table 3.1 provides detailed definitions of all variables. In the logistic model, we estimate robust standard errors using the Huber (1967) and White (1980) procedure, with firm-level clustering for lack of independence of observations by firm (Charles et al. (2010); Rogers (1993)). In each regression we include industry-level fixed effects by Fama and French (2008) 12 groups of SIC codes.

To test the influence of agency costs (*H3.1*), corporate governance structure (*H3.2*), and error announcement risk (*H3.3*) on the review decision, we include the variables *FREEFLOAT*, *AC* and *EM,* respectively.

FREEFLOAT is the percentage of shares outstanding not owned by block holders, which proxies for the information asymmetry between investors and management. Following Ettredge et al. (1994) we assume a positive relation between *FREEFLOAT* and *REVIEW* (*H3.1*). In the sensitivity analysis we substitute this ownership proxy by a system of binary ownership variables.

According to Section 5.3.2 of the German Corporate Governance Code the 'supervisory board [of a listed company] shall set up an Audit Committee which, in particular, handles issues of accounting, risk management and compliance, the necessary independence required of the auditor, the issuing of the audit mandate to the auditor, the

determination of auditing focal points and the fee agreement. The chairman of the audit committee must be a financial expert' and not be a former member of the management whose appointment ended less than two years ago. Since 2009, if the company decides against an audit committee formation there must be a financial expert on the supervisory board (Section 100 (5) AktG). In our study we include the binary variable *AC* which captures the voluntary existence of an audit committee as a proxy for good corporate governance. Following Mangena and Tauringana (2008), we assume a positive relation between *AC* and *REVIEW* (*H3.2*).

The main hypothesis *H3.3* assumes a positive influence of error announcement risk on the demand for a voluntary review. In previous studies earnings management measures are related to the likelihood of error findings and further possible litigation, turnover or reputation risks. In the study by Jones et al. (2008), ten measures of earnings management are significantly associated with restatements and fraudulent events. The studies by Dechow et al. (2011) and Ettredge et al. (2010) also find significantly high levels of (discretionary) accruals for restatement companies. Therefore, we measure the variable earnings management (*EM*) using two discretionary accrual models. Our first accrual quality model follows the Dechow-Dichev-Model (Dechow and Dichev, 2002):

$$WC\_ACC_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \varepsilon_{i,t} \qquad (3.2)$$

Our second (discretionary) accrual model uses the Modified-Jones-Model (Dechow et al. 1995):

$$ACC_{i,t} = \beta_0 + \beta_1 \left(1/ASSETS_{i,t-1}\right) + \beta_2 \left(\Delta SALES_{i,t} - \Delta AR_{i,t}\right) + \beta_3 PPE_{i,t} + \varepsilon_{i,t} \quad (3.3)$$

Dechow et al. (2011) and Jones et al. (2008) conclude that the Dechow-Dichev-Model has more explanatory power than the Modified-Jones-Model. Nevertheless we include the Modified-Jones-Model because of its popularity in the literature. Working capital accruals (*WC_ACC*) are computed as net income before extraordinary items plus depreciation minus operating cash flows for year *t*. We calculate the total accruals (*ACC*) as differences between income before extraordinary items and operating cash flow for year *t*. All variables are scaled by lagged total assets. We run *Model 3.2* and *3.3* cross-

sectionally for at least 5 observations of each year and industry combination (12-industry classification by Fama and French (2008)). The discretionary accruals for firm *i* are measured as the residuals from each model (*DDM, MJM*).

The literature includes absolute discretionary accruals to account for the influence of extreme earnings management. According to DeFond et al. (2012) conservative audit clients are less likely to publish accounting restatements. The possible influence of aggressive or conservative earnings management (upwards or downwards discretionary accruals) on the error announcement risk could be different. Aggressive earnings management should be more risky than its conservative approach, especially in Germany with its long-lasting conservative accounting tradition. Therefore, we run our logistic regression model by including the absolute, positive and negative value of each earnings management measure for each calculation. We assume a positive (negative) relation between increasing/aggressive (decreasing/conservative) earnings management, i.e. error announcement risk, and the review purchase.

As control variables, we include firm and auditor characteristics. Firm size (*ASSETS*) controls for review costs and political interest in the company. We predict a positive influence. *ROA* and *LEV* represent profitability and financial risk. We expect a positive influence, because more profitable firms are interested in certifying their success and high leverage needs reliable financial information. *N_SEG* and *AR_INV* control for complexity and should be positively related to review costs, and therefore, be negatively related to demand for a review. *BIG4* is an auditor characteristic that proxies for higher audit quality and a more prominent signaling effect. We predict a positive influence. *PRIME* is a binary variable for companies listed in the Prime Standard of the German stock exchange, a market segment which complies with international transparency standards, and should affect demand positively.

Table 3.1: Definition of variables

$REVIEW_{i,t}$	Binary variable that takes a value of one if firm i disclosed a review report of a voluntary semi-annual review in period t, and zero otherwise.
$ASSETS_{i,t}$	Natural logarithm of total assets of firm i in period t.
$ROA_{i,t}$	Income before extraordinary items plus net-of-tax interest expense deflated by average total assets of firm i in period t. We winsorize ROA at the top and bottom 1 percent.
$LEV_{i,t}$	Total debt divided by total assets of firm i in period t. We winsorize LEV at the top and bottom 1 percent.
$AR\_INV_{i,t}$	Sum of accounts receivables and inventory scaled by total assets of firm i in period t. We winsorize AR_INV at the top and bottom 1 percent.
$N\_SEG_{i,t}$	Number of product segments of firm i in period t.
$PRIME_{i,t}$	Binary variable that takes a value of one if firm i is listed in the *Prime All Share Index* of the Frankfurt Stock Exchange in period t, and zero otherwise. The listing in the *Prime All Share Index* complies with high international transparency standards.
$BIG4_{i,t}$	Binary variable that takes a value of one if firm i has a '*BIG4*' auditor in period t, and zero otherwise.
$FREEFLOAT_{i,t}$	Shares outstanding minus shares held by corporations, holding companies, individuals and government agencies divided by shares outstanding (in percentage) of firm i in period t.
$AC_{i,t}$	Binary variable that takes a value of one if firm i has voluntarily established an audit committee in line with the German Corporate Governance Code in period t, and zero otherwise.
$EM_{i,t}$	Earnings management variable substituted by *MJM_ABS*, *MJM_POS*, *MJM_NEG*, *DDM_ABS*, *DDM_POS* and *DDM_NEG* of firm i in period t.
$WC\_ACC_{i,t}$	Change of non-cash working capital accruals scaled by lagged total assets of firm i in period t where change of non-cash working capital accruals is calculated as the difference between net income before extraordinary items plus depreciation and cash flow from operations.
$CFO_{i,t}$	Cash flow from operating activities scaled by the lagged total assets of firm i in period t ($CFO_{i,t-1}$ and $CFO_{i,t+1}$, respectively).
$DDM_{i,t}$	Working capital signed discretionary accruals for firm i in period t measured as the residual from the Dechow-Dichev-Model (Dechow and Dichev, 2002) estimated for each quarter and industry combination (12-industry classification by Fama and French (2008)) with at least 5 observations, scaled by total assets. We winsorize DDM at the top and bottom 1 percent.
$DDM\_ABS_{i,t}$	Absolute value of *DDM* of firm i in period t.
$DDM\_POS_{i,t}$	Only positive values of *DDM* of firm i in period t.
$DDM\_NEG_{i,t}$	Only negative values of *DDM* of firm i in period t.
$ACC_{i,t}$	Change of non-cash total accruals scaled by lagged total assets of firm i in period t where the change of non-cash total accruals is calculated as the difference between net income before extraordinary items and cash flow from operations.

Table continued on the next page

Table 3.1: Definition of variables (continued)

$\Delta SALES_{i,t}$	Change of revenues of firm i in period t scaled by lagged total assets where the change of revenues is calculated as the difference between revenues in period t and revenues of period t-1
$\Delta AR_{i,t}$	Change of net accounts receivables of firm i in period t scaled by lagged total assets where the change of net accounts receivables is calculated as the difference between net accounts receivables in period t and net accounts receivables of period t-1.
$PPE_{i,t}$	Gross property, plant and equipment of firm i in period t scaled by lagged total assets:
$MJM_{i,t}$	Total signed discretionary accruals for firm i in period t measured as the residual from the Modified-Jones-Model (Dechow et al., 1995) estimated for each year and industry combination (12-industry classification by Fama and French (2008)) with at least 5 observations, scaled by total assets. We winsorize MJM at the top and bottom 1 percent.
$MJM\_ABS_{i,t}$	Absolute value of MJM of firm i in period t.
$MJM\_POS_{i,t}$	Only positive values of MJM of firm i in period t.
$MJM\_NEG_{i,t}$	Only negative values of MJM of firm i in period t.
$DDM\_JONES_{i,t}$	Working capital signed discretionary accruals for firm i in period t measured as the residual from the extended Dechow-Dichev-Model by McNichols (2002) estimated for each quarter and industry combination (12-industry classification by Fama and French (2008)) with at least 5 observations including the change in sales and the level of property, plant, and equipment, scaled by total assets. We winsorize DDM_JONES at the top and bottom 1 percent.
$MJM\_ROA_{i,t}$	Total signed discretionary accruals for firm i in period t measured as the residual from a Modified-Jones-Model with performance adjustment (Kothari et al., 2005) estimated for each year and industry combination (12-industry classification by Fama and French (2008)) with at least 5 observations including lagged return on assets, scaled by total assets. We winsorize MJM_ROA at the top and bottom 1 percent.
$TDIA_t$	Binary variable that takes a value of one after the Transparency Directive Implementing Act came into force (for years after 2006), and zero otherwise.
$BLOCK\_10\_25_{i,t}$	Binary variable that takes a value of one if firm i has a major shareholder with an ownership of at least 10 percent, but less than 25 percent in period t, and zero otherwise.
$BLOCK\_25\_50_{i,t}$	Binary variable that takes a value of one if firm i has a major shareholder with an ownership of at least 25 percent, but less than 50 percent in period t, and zero otherwise.
$BLOCK\_50\_100_{i,t}$	Binary variable that takes a value of one if firm i has a major shareholder with an ownership of at least 50 percent in period t, and zero otherwise.

3.4.2 *Sample Selection and Data*

We collect our data from the Worldscope database (Thomson ONE Analytics). Information about a review purchase and the existence of an audit committee is collected from the semi-annual and annual financial statements. For our review model we relate the financial statement information in period *t* to the disclosure of a semi-annual review report, i.e. a decision for a review, in period *t+1*. According to Section 325(4) HGB the disclosure of the annual report of period *t* must be in the first four months in period *t+1* (the German Corporate Governance Code No. 7.1.2 commits to a publication in 90 days in period *t+1*). The general meeting, where the auditor is elected and the decision for or against a review is made, follows afterwards. Therefore, the annual statement in period *t* is the closest disclosure of financial figures before the review decision for *t+1* is made. For the calculation of our earnings management models, we need financial information over three periods. Based on the legal change in 2007 and the following developing auditor review market, we collected year-end financial data from 2005 until 2010 to investigate the semi-annual review decision from 2007 to 2010 for German companies listed at the Frankfurt Stock Exchange.

The Worldscope database represents 3,632 firm year observations from 2007 to 2010 for companies listed on the Frankfurt Stock Exchange. The exclusion of banks and insurance companies restricts the sample to 2,988 firm-years. The requirement for additional financial data over three periods leads to a sample of 1,430 firm-years. Firms with missing information about an audit committee, the ownership structure, and the interim review are excluded and further reduce the sample to 1,129 firm-years. Cross-listed firms (28), firms that disclose an enforcement release (35), present a negative or modified auditor opinion in the annual report (2), are audited by two auditors (6) or purchase an interim review before the TDIA or afterward in all quarters (28) are deleted and reduce our sample to 1,030 firm year observations listed in the Prime or General Standard of the Frankfurt Stock Exchange. In our entire sample no audit is performed instead of a review and all semi-annual reviews are a service provided by the year-end auditor.

Panel A of Table 3.2 summarizes the trend of the demand for review from 2007 to 2010. Overall, 182 out of 1,030 observations have semi-annual reports that are reviewed (17.7%). Before the TDIA came into force only 2 out of 248 companies purchased a review in 2006. After the legal change, 37 of 253 companies decided in favor

of a review (14.6%). From 2007 to 2010 the observable reviews increased to 19.5%. Panel B illustrates the sample distribution by industry.

Table 3.2: Sample distribution by year and industry

Panel A: Sample distribution by year

	Review sample	Proportion of Reviews	Non-Review sample	Total	Proportion by firm-years
Fiscal year 2006 *(not included)*	2	0.81%	246	248	---
Fiscal year 2007	37	14.62%	216	253	24.56%
Fiscal year 2008	47	18.29%	210	257	24.95%
Fiscal year 2009	48	18.25%	215	263	25.53%
Fiscal year 2010	50	19.46%	207	257	24.95%
Total	182	17.67%	848	1,030	100.00%

Panel B: Sample distribution by industry

Industry	Review sample	Proportion of Reviews	Non-Review sample	Total	Proportion
Consumer non-durables	4	4.76%	80	84	8.15%
Consumer durables	12	23.53%	39	51	4.95%
Manufacturing	42	17.28%	201	243	23.59%
Chemicals	8	19.51%	33	41	3.98%
Business equipment	21	9.63%	197	218	21.17%
Communication	8	26.67%	22	30	2.91%
Utilities	5	22.72%	17	22	2.14%
Retail	37	29.37%	89	126	12.23%
Healthcare	11	18.64%	48	59	5.72%
Others	34	21.79%	122	156	15.15%
Total	182	17.67%	848	1,030	100.00%

3.5   Results

3.5.1   Descriptive Statistics and Univariate Results

Table 3.3 provides descriptive statistics and the correlation matrix. Panel A illustrates that the average firm in our main sample has €3.603 billion in total assets (median of €225 million). The skewness is corrected by including the variable *ASSETS*, which is measured as the natural logarithm of total assets. Except for large differences between the mean and median of total assets, these measurements are nearly equivalent for each of *AR_INV* (mean 0.37), *LEV* (mean 0.21) and *ROA* (mean 0.05).

67% of observations are listed in the Prime Standard. 66% of observations have their year-end audit performed by a BIG4 auditor; this is a representative figure because the German Chamber of Auditors (WPK, Wirtschaftsprüferkammer) reports a Big-5 (including BDO) market share for the year 2009 of 70 % (WPK 2010, p. 249). The number of product segments (*N_SEG*) has a mean of 2.71. The mean value of *FREEFLOAT* is 56%. If we split up the ownership in a system of dummy variables, 30% of our sample has no major owner with more than 10% holdings, 20% (24%) of our sample has a major owner between 10% and 25% (25% and 50%), and 26% of firms in our sample have a major shareholder with more than 50% holdings (not tabulated). For our corporate governance proxy, around 52% of observations have a voluntary audit committee. The discretionary accrual models *DDM* and *MJM* each provide a mean of 0.00 and a standard deviation of 0.09 and 0.10, respectively. The values of *MJM* and *DDM* before winsorizing show a minimum of -0.640 and -0.464 and a maximum of 0.907 and 0.919, respectively (winsorized at the top and bottom 1%-level: *MJM*-min: -0.311, *MJM*-max: 0.431; *DDM*-min -0.266, *DDM*-max 0.407 (not tabulated)).

In Panel B of Table 3.3 we show the Pearson and Spearman correlation matrix between the variables. The figures indicate initial evidence of our hypothesized relationship between the existence of an audit committee (*AC*) and our dependent variable *REVIEW*. We find only a weak positive correlation between *REVIEW* and our discretionary accrual measures *MJM* and *DDM*. The variable *ASSETS* has the strongest correlation with *REVIEW*. Audit committee existence is also positively correlated with total assets and this relationship provides the highest correlation (0.56/0.54); this influence can occur from the supervisory board size effect. For a company with a

supervisory board comprised of three members it is neither possible nor useful to set up an audit committee.

Table 3.4 provides univariate findings. The mean values of the reviewed and non-reviewed subsamples differ significantly, and in the predicted direction, for all values except for *N_SEG*. The univariate analysis indicates a positive influence on *REVIEW* for companies that are big, listed in the Prime Standard, audited by a *BIG4*, have a high level of leverage, and have aggressive income-increasing earnings management. *REVIEW* is negatively related to the level of accounts receivable and inventories.

Table 3.3: Descriptive statistics and correlation

Panel A: Descriptive statistics for independent variables

	Mean [Prop.]	Std. Dev.	Lower quartile	Median	Upper quartile
BIG4	[0.66]				
ASSETS (ln)	19.59	1.90	18.25	19.23	20.79
ASSETS (mio. €)	3,603	18,110	84.13	225.36	1,071
AR_INV	0.37	0.18	0.22	0.38	0.51
LEV	0.21	0.18	0.05	0.19	0.33
ROA	0.05	0.10	0.02	0.05	0.09
N_SEG	2.71	1.16	2.00	3.00	3.00
PRIME	[0.67]				
FREEFLOAT	56.24	28.97	31.70	53.31	80.56
AC	[0.52]				
DDM	-0.00	0.09	-0.04	0.00	0.03
MJM	-0.00	0.10	-0.04	0.00	0.04

Panel B: Correlation of variables

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	REVIEW		**0.12**	**0.28**	**-0.10**	**0.14**	0.01	0.04	**0.11**	**0.08**	**0.21**	0.05	0.03
(2)	BIG4	**0.12**		**0.34**	**-0.07**	**0.08**	-0.04	**0.10**	**0.12**	0.07	**0.36**	**-0.07**	**-0.09**
(3)	ASSETS	**0.30**	**0.35**		-0.04	**0.31**	0.04	**0.27**	**0.27**	0.07	**0.56**	0.06	-0.01
(4)	AR_INV	**-0.09**	**-0.08**	**-0.07**		-0.05	**0.09**	-0.07	0.00	0.04	0.02	**0.08**	**0.10**
(5)	LEV	**0.12**	0.07	**0.26**	-0.08		**-0.21**	**0.10**	**-0.14**	0.03	**0.09**	0.02	-0.02
(6)	ROA	0.06	-0.03	**0.10**	**0.09**	**-0.15**		-0.04	**0.10**	-0.01	-0.04	**0.25**	**0.23**
(7)	N_SEG	0.02	**0.10**	**0.30**	-0.05	**0.08**	-0.04		**0.11**	0.02	**0.06**	-0.01	**-0.08**
(8)	PRIME	**0.11**	**0.12**	**0.28**	-0.02	**-0.15**	0.07	**0.10**		0.03	**0.30**	-0.01	-0.03
(9)	FREEFL.	**0.08**	**0.07**	**0.08**	0.03	0.03	-0.02	0.01	0.03		**0.07**	0.02	0.02
(10)	AC	**0.21**	**0.36**	**0.54**	0.02	0.06	-0.01	**0.07**	**0.30**	0.07		-0.04	-0.05
(11)	DDM	**0.07**	**-0.08**	0.03	**0.13**	-0.01	**0.35**	-0.02	-0.01	0.05	-0.05		**0.55**
(12)	MJM	0.05	**-0.08**	-0.02	**0.12**	-0.05	**0.30**	-0.05	-0.03	**0.07**	-0.06	**0.68**	

Notes: This table shows descriptive statistics and correlations for the full sample (1,030 observations). Panel A provides descriptive statistics of the independent variables. Panel B shows pair-wise Spearman (above the diagonal) and Pearson correlation coefficients (below the diagonal) for all variables. Bold numbers indicate two-tailed significance at the 0.05 level. Variables are defined in Table 3.1.

Table 3.4: Univariate statistics

	Mean		Mean difference			
	Review sample	Non-Review sample	Exp. sign	Diff.	Sig.	Number of obs. (reviewed)
BIG4	0.786	0.634	+	0.151	(3.94)***	1.030 (182)
ASSETS	20.826	19.327	+	1.499	(10.13)***	1.030 (182)
AR_INV	0.335	0.379	-	-0.044	(-3.05)***	1.030 (182)
LEV	0.256	0.201	+	0.055	(3.86)***	1.030 (182)
ROA	0.059	0.044	+	0.015	(1.84)**	1.030 (182)
N_SEG	2.764	2.699	-	0.064	(0.68)	1.030 (182)
PRIME	0.780	0.646	+	0.134	(3.51)***	1.030 (182)
FREEFLOAT	61.329	55.145	+	6.184	(2.62)***	1.030 (182)
AC	0.753	0.475	+	0.278	(6.95)***	1.030 (182)
DDM	0.012	-0.005	+	0.017	(2.33)***	1.030 (182)
MJM	0.009	-0.002	+	0.012	(1.47)***	1.030 (182)

Notes: This table shows univariate results for our dependent and independent variables. Variables are defined in Table 3.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level.

3.5.2   Multivariate Results

In Table 3.5 the results of our multivariate regression of the relationship between the independent variables *AC*, *FREEFLOAT*, *DDM*, *MJM* and the dependent variable *REVIEW* are illustrated. We regress the review decision in year *t+1* on independent variables from year *t*, because we assume that expectations, e.g. about earnings management risk, are based on realized ex post values. All logistic regression models use robust standard errors with firm-level clustering and include industry-level and year fixed-effects. We run our logistic model for the earnings management variable *DDM* and *MJM*. In each case we run the model three times for the absolute, positive (earnings increasing) and negative (earnings decreasing) values of *DDM* and *MJM*. Therefore, we display six different results of our logistic model in Table 3.5. At the 1% level or better the results indicate that all six logistic models are significant in explaining voluntary interim auditor review involvement. The McFadden-R^2 varies between 0.162 and 0.212. The mean of the variation inflation factor (VIF) of 1.25 with the highest value of 1.87 for size indicates no multicollinearity influences.

For our main proxies *FREEFLOAT*, *AC* and *EM*, i.e. *DDM* and *MJM*, the results differ over the three (sub)samples. The results of the agency cost hypothesis (*FREEFLOAT*; *H3.1*) provide a significant positive effect on the demand for review for the earnings increasing discretionary accrual subsample and for the total sample. Companies with a high level of *FREEFLOAT* are more likely to purchase a review, but the results are driven by a combined effect between increasing earnings management behavior and *FREEFLOAT*. The target to meet the expectations of the investors in a high agency cost environment leads to a higher likelihood of a review purchase. For our corporate governance hypothesis (*AC*; *H3.2*) only the earnings decreasing subsample shows a positive and significant relation between *REVIEW* and *AC*. Firms with a good corporate governance structure and decreasing earnings management have a higher likelihood of purchasing a review. The conservative accounting behavior and high corporate governance quality leads to a demand of auditor involvement. According to the error announcement risk hypothesis *(DDM*, *MJM*; *H3.3*) the absolute and positive discretionary accruals indicate a positive and significant effect on *REVIEW*. We do not find a significant effect of negative discretionary accruals on the engagement of an interim review, i.e. we must differentiate between upwards and downwards earnings

Table 3.5: Testing the association between interim reviews and error announcement risk

	Exp. sign	Model DDM			Model MJM		
		(1) absolute Coef. (t-value)	(2) positive Coef. (t-value)	(3) negative Coef. (t-value)	(4) absolute Coef. (t-value)	(5) positive Coef. (t-value)	(6) negative Coef. (t-value)
BIG4	+	0.074 (0.17)	0.533 (1.00)	-0.241 (-0.50)	0.080 (0.18)	-0.190 (-0.37)	0.536 (1.12)
ASSETS	+	0.360*** (3.24)	0.394*** (3.04)	0.350** (2.50)	0.354*** (3.19)	0.446*** (3.43)	0.215** (1.67)
AR_INV	-	-1.639** (-1.68)	-2.423*** (-2.16)	-0.947 (-0.77)	-1.659** (-1.72)	-1.927** (-1.78)	-1.524 (-1.25)
LEV	+	0.845 (0.93)	-0.043 (-0.04)	1.431 (1.28)	0.824 (0.91)	-0.062 (-0.07)	1.94** (1.63)
ROA	+	2.577** (1.80)	1.494 (0.55)	2.669* (1.55)	2.500** (1.74)	-0.192 (-0.11)	4.368*** (2.36)
N_SEG	-	-0.223** (-1.73)	-0.219* (-1.47)	-0.212 (-1.25)	-0.218** (-1.70)	-0.179 (-1.25)	-0.247* (-1.52)
PRIME	+	0.153 (0.35)	0.178 (0.36)	0.075 (0.15)	0.146 (0.33)	-0.035 (-0.07)	0.528 (1.07)
FREEFL.	+	0.008* (1.59)	0.011** (1.83)	0.006 (0.98)	0.008* (1.55)	0.009* (1.39)	0.008 (1.19)
AC	+	0.530 (1.26)	0.208 (0.42)	0.656* (1.52)	0.531 (1.27)	0.413 (0.90)	0.631* (1.50)
DDM_ABS	+	2.726* (1.61)					
DDM_POS	+		4.476*** (2.77)				
DDM_NEG	-			0.610 (0.24)			
MJM_ABS	+				2.596** (1.70)		
MJM_POS	+					4.011*** (3.03)	
MJM_NEG	-						-0.155 (-0.07)
2008	?	0.237* (1.82)	0.610* (1.66)	0.087 (0.42)	0.228* (1.73)	0.169 (0.48)	0.133 (0.52)
2009	?	0.292* (1.81)	1.090*** (2.94)	-0.345 (-1.03)	0.302* (1.85)	0.203 (0.65)	0.393 (1.20)
2010	?	0.450** (2.57)	1.291*** (3.28)	-0.106 (-0.32)	0.431** (2.47)	0.561* (1.70)	0.330 (0.96)
Constant	?	-9.196*** (-4.71)	-10.236*** (-4.58)	-8.822*** (-3.74)	-9.028*** (-4.66)	-10.286*** (-4.50)	-7.108*** (-3.18)
McFad.R2		0.162	0.212	0.180	0.163	0.180	0.188
Chi2		53.842	54.139	49.472	50.542	46.445	68.353
p		0.000	0.000	0.000	0.000	0.000	0.000
Obs.		1,030	492	538	1,030	512	518

Notes: This table shows the results of our interim review models. In all logistic regressions, robust standard errors are estimated using the Huber (1967)/White (1980) procedure, with firm-level clustering (Rogers 1993) for lack of independence of observations by firm. All regressions include year and industry-level fixed effects, with industry definitions corresponding to the 12 groups of SIC codes by Fama and French (2008). Variables are defined in Table 3.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level when the expected sign is positive or negative.

management. Aggressive earnings management activities and a resulting higher error announcement risk lead to a higher likelihood of purchasing a review. The results between the *DDM*-model and the *MJM*-model within the same (sub)sample are qualitatively comparable. The earnings management variables are in accordance with our restatement hypothesis.

Further, our control variables demonstrate significant effects on the demand for a review. In line with our prediction, *ASSETS* affects the demand for a review positively. Profitability (*ROA*) positively influences the demand for a review only for the absolute and earnings decreasing sample. The review cost-influencing factors, *AR_INV* and *N_SEG*, provide a mainly negative effect on *REVIEW*. *BIG4* and *PRIME* do not have a significant influence in our models and *LEV* only has a significant influence in one of the six models.

3.5.3   Additional Analysis

In our analysis we evaluate the influence of agency costs, corporate governance structure, and error announcement risk on the demand for voluntary reviews. To provide additional evidence of our model we vary our logistic regression model in various dimensions. The influence of the error announcement risk proxies on the review decision remain constant over all variations, but the effect of the agency cost and corporate governance proxies differs over the subsamples.

In Table 3.6 we split our main sample into various subsamples ((1) to (7)) to control for size, performance, and listing effects. In each regression in Table 3.6, we use a logistic regression with firm-level clustering comparable to our main model. First, we want to extract possible size-effects of the review decision. We match each observation of the reviewed sample with a non-reviewed firm in our sample. The matched observation has the same fiscal year (of financial statements) and is in the same industry (using the 12-industry classification by Fama and French 2008) and comes from a firm which is most similar in size (using year-end total assets). The error announcement risk hypothesis still holds after the matching procedure, but the explanatory power of the regression decreases. For *FREEFLOAT* and *AC* we do not find any significant influences.

Table 3.6: Clustering - Size, profitability and listing effects

		Exp. sign	Model DDM			Model MJM		
			absolute Coef.	positive Coef.	negative Coef.	absolute Coef.	positive Coef.	negative Coef.
(1) *Matched Sample*	*FREEFL*	+	0.004	0.008	0.000	0.003	0.004	0.001
	AC	+	0.281	0.271	0.241	0.295	0.253	0.510
	EM	+/+/-	3.698**	5.967***	-1.930	4.431***	5.046***	-2.735
	McFad. R2		0.072	0.152	0.067	0.077	0.121	0.120
	Obs.		360	178	182	360	183	177
(2) *ASSETS > median (n=131 reviewed)*	*FREEFL*	+	0.012**	0.018***	0.005	0.011**	0.012*	0.013**
	AC	+	0.841*	0.559	0.994**	0.849*	0.695	1.098**
	EM	+/+/-	3.314*	6.178***	0.194	3.232*	5.079**	-3.328
	McFad. R2		0.137	0.223	0.127	0.138	0.171	0.143
	Obs.		515	257	258	515	253	62
(3) *ASSETS < median (n=51 reviewed)*	*FREEFL*	+	-0.005	-0.005	-0.001	-0.005	-0.003	-0.002
	AC	+	0.238	-0.145	0.332	0.233	-0.008	0.311
	EM	+/+/-	3.087	3.898**	1.801	2.731	4.284***	4.995
	McFad. R2		0.113	0.161	0.150	0.112	0.155	0.189
	Obs.		515	235	280	515	259	256
(4) *ROA > median (n=86 reviewed)*	*FREEFL*	+	0.011**	0.013**	0.008	0.011*	0.007	0.015**
	AC	+	0.663*	0.862*	0.151	0.638*	0.87*	0.352
	EM	+/+/-	4.525***	3.411**	-2.229	4.187***	3.697***	-3.959
	McFad. R2		0.139	0.167	0.153	0.137	0.157	0.167
	Obs.		515	279	236	515	286	229
(5) *ROA < median (n=96 reviewed)*	*FREEFL*	+	0.002	0.002	0.002	0.002	0.004	0.001
	AC	+	0.579	-0.141	1.157*	0.601	0.393	1.022
	EM	+/+/-	0.714	7.414*	3.589	1.869	6.479**	2.041
	McFad. R2		0.197	0.265	0.227	0.197	0.207	0.234
	Obs.		515	213	302	515	226	289
(6) *PRIME =1 (n=142 reviewed)*	*FREEFL*	+	0.015**	0.016**	0.013*	0.014**	0.016**	0.013*
	AC	+	0.392	0.209	0.391	0.408	0.349	0.383
	EM	+/+/-	2.547*	3.697***	-0.783	3.106**	3.638**	-1.997
	McFad. R2		0.157	0.225	0.129	0.160	0.193	0.147
	Obs.		690	323	367	690	336	354
(7) *PRIME =0 (n=40 reviewed)*	*FREEFL*	+	-0.007	-0.001	-0.017**	-0.007	-0.007	-0.004
	AC	+	1.005*	0.656	1.931**	1.013*	0.863*	1.732**
	EM	+/+/-	2.246	4.545**	15.759***	0.229	3.500**	21.459***
	McFad. R2		0.107	0.100	0.311	0.104	0.104	0.306
	Obs.		340	169	171	340	176	164

Notes: This table shows a fraction of the results of our interim review models using different subsamples. We only report the results for selected variables. In all logistic regressions we use robust standard errors with firm-level clustering comparable to our main model. All regressions include year and industry-level fixed effects (except of subsample (1)). The subsample (1) is matched by year, size and industry. Variables are defined in Table 3.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level when the expected sign is positive or negative.

In the next step we split our sample into subsamples at the median of *ASSET*S. In our subsamples (515 firm-years each) 131 reviewed companies are contained in the 'big' subsample (25.4%), but only 51 reviewed companies are in our 'small' subsample (9.9%). In both fractions the error announcement risk influence for increasing earnings management is still highly significant. The signaling effect for companies with high agency costs and the corporate governance effect hold only for the 'big' subsample. For the next two subsamples we split the sample by the median of *ROA*, i.e. profitability. The distribution of the 182 reviewed companies is comparable for both groups (86 reviewed firms in the 'high' *ROA* subsample, 96 reviewed firms in the 'low' *ROA* subsample). This means that profitability and the signaling effect cannot be a main driver. Comparable to the size subsamples, we find positive evidence for the 'high' *ROA* sample for all three hypotheses and evidence for the error announcement risk hypothesis only in the 'low' *ROA* sample. The last results in Table 3.6 break the sample into firms listed on the Prime or General Standard at the Frankfurt Stock Exchange. For *PRIME*-firms, the signaling and the risk of error findings influence the decision for or against a review; there is no corporate governance impact. The General Standard subsample – lower level of transparency and liquidity - provides a completely different result; in this case audit committee existence is highly significant. To sum up, the effect of aggressive earnings management (positive discretionary accruals) on the demand for auditor reviews holds over all subsamples.

3.5.4 Robustness Checks

As a robustness check for our error announcement risk hypothesis, we rerun our logistic model with three additional measures of (discretionary) accruals. According to Bayley and Taylor (2007) and Dechow et al. (2011), total accruals (*ACC*) are better than various measures of discretionary accruals in identifying accounting misstatements. According to Panel A of Table 3.7, the variable *POS_ACC* is positively related to *REVIEW*. The same results are provided for the discretionary accrual models by McNichols (2002; *DDM_JONES*) and Kothari et al. (2005; *MJM_ROA*). We calculate *DDM_JONES* as the residual of the *DDM*-Model measured cross-sectionally for at least 5

observations for each year and industry combination including the change in sales and the level of property, plant, and equipment, respectively. For the *MJM_ROA*-Model, we include the prior year *ROA* into the *MJM*-Model. The results remain qualitatively unchanged.

In subsample (1) of Panel B we test the influence of the error announcement risk for the first decision when the *TDIA* came into force and provide evidence of the legal change on the review market. By including the available observations for 2006 and *TDIA* as a time variable to extract the effect of the legal change we still observe a highly significant influence of earnings management on the semi-annual review purchase. The *TDIA* as well as the *EM* variables for the absolute and positive earnings management values are positive and significant at a 1% level. *H3.1* and *H3.2* are only weakly supported.

To check the robustness of the agency cost variable we substitute *FREEFLOAT* by a system of ownership dummy variables (subsample (2) in Panel B). We include *BLOCK_10_25*, *BLOCK_25_50* and *BLOCK_50_100*, which are defined as a binary variable equal to one if the major shareholder has more than 10% but less than 25% holdings, more than 25% but less than 50% holdings or more than 50% holdings. The control group contains firms with no major shareholder bigger than 10%; all other ownership variables show negative signs, which is in line with our hypothesis. Contrary to the main results, the most negative significant influence on the review decision is observed for *BLOCK_25_50* while *BLOCK_10_25* does not provide significant results. Sánchez-Ballesta and Garcia-Meca (2007, p. 677) argue that 'insider ownership contributes both to the informativeness of earnings and to constraining earnings management when the proportion of shares held by a major shareholder is not too high. When insiders own a large percentage of shares, they are entrenched and the relation between insider ownership and earnings informativeness reverses.' Our results reinforce the argument by Sánchez-Ballesta and García-Meca (2007) that the agency conflict provides a quadratic relationship, with a minimum around 40% insider ownership. The study by Warning (2011) for German publicly listed firms also shows an effect of ownership concentration on compliance – the relation is 'inversely U-shaped' (Warning (2011), p. 265; for further studies see McConnell and Servaes (1990); Morck et al. (1988); Yeo et al. (2002)).

Table 3.7: Robustness checks

Panel A: Accrual models

	Exp. sign	Model *ACC*			Model *DDM_JONES*			Model *MJM_ROA*		
		absolute Coef.	*positive* Coef.	*negative* Coef.	*absolute* Coef.	*positive* Coef.	*negative* Coef.	*absolute* Coef.	*positive* Coef.	*negative* Coef.
FREEFLOAT	+	0.009*	0.004	0.009**	0.008*	0.007	0.011**	0.009*	0.004	0.016***
AC	+	0.505	0.241	0.615	0.528	0.284	0.651	0.541	0.573	0.507
EM	+/+/-	1.554	2.986***	-0.871	2.519*	3.285***	-2.648	2.794*	4.422***	-1.409
McFadden R2		0.160	0.161	0.190	0.162	0.169	0.203	0.162	0.189	0.184
Number of Obs.		1,030	243	778	1,030	494	536	1,030	469	561

Panel B: The effect of the Transparency Directive Implementing Act and ownership distribution

			Exp. sign	Model *DDM*			Model *MJM*		
				absolute Coef.	*positive* Coef.	*negative* Coef.	*absolute* Coef.	*positive* Coef.	*negative* Coef.
(1)	*TDIA* (2006-2010)	*FREEFLOAT*	+	0.004	0.008*	0.000	0.003	0.005	0.001
		AC	+	0.473	0.607	0.341	0.483	0.611*	0.345
		TDIA	+	2.916***	3.567***	2.806***	2.914***	3.596***	2.650***
		EM	+	2.724**	3.604***	-0.470	3.099***	3.424***	-0.929
		McFadden R2		0.210	0.243	0.208	0.212	0.239	0.221
		Number of Obs.		1,373	640	733	1,373	674	699
(2)	*FREEFLOAT*	*BLOCK_10_25*	-	-0.422	-0.463	-0.398	-0.420	-0.303	-0.550
		BLOCK_25_50	-	-0.827**	-0.684*	-0.952**	-0.808**	-0.880**	-0.703
		BLOCK_50_100	-	-0.411	-0.62*	-0.347	-0.392	-0.416	-0.379
		AC	+	0.557*	0.207	0.722*	0.557*	0.428	0.665*
		EM	+	2.968**	4.635***	0.249	2.810**	3.985***	-0.655
		McFadden R2		0.166	0.211	0.189	0.167	0.184	0.191
		Number of Obs.		1,030	492	538	1,030	512	518

Panel C: First review decision effect

		Exp. sign	Model *DDM*			Model *MJM*		
			absolute Coef.	*positive* Coef.	*negative* Coef.	*absolute* Coef.	*positive* Coef.	*negative* Coef.
	FREEFLOAT	+	0.012**	0.019**	0.007	0.012**	0.010	0.013**
	AC	+	0.804**	0.879*	0.807*	0.802**	0.955**	0.874*
(1) *Total Sample*	*EM*	+	1.292	3.657*	7.837**	1.024	2.126	1.232
	McFadden R2		0.133	0.197	0.139	0.132	0.145	0.163
	Number of Obs.		902	424	478	902	449	453
	FREEFLOAT	+	0.011*	0.023*	0.014	0.011*	0.015	0.003
	AC	+	1.141**	2.537*	0.506	1.131**	2.404**	0.702
(2) *Matched Sample*	*EM*	+	1.138	13.455**	17.553**	0.708	6.866	5.224
	McFadden R2		0.101	0.259	0.148	0.100	0.179	0.175
	Number of Obs.		118	51	67	118	55	63

Notes: This table shows a fraction of the results of our interim review models. We only report the results for selected variables. In all logistic regressions we use robust standard errors with firm-level clustering comparable to our main model and include year and industry-level fixed effects (except of Panel C subsample (1)). Panel A substitutes *EM* by the total value of accruals (*ACC*), and the discretionary accruals by McNichols (2002; *DDM_JONES*) and Kothari et al. (2005; *MJM_ROA*). Subsample (1) of Panel B includes all available observations in 2006 and the time variable *TDIA*. Subsample (2) of Panel B includes a system of binary variables instead of *FREEFLOAT*. Panel C only includes the first review decision observation. Subsample (1) of Panel C includes all first time review decision companies and all non-reviewed companies of our total sample. Subsample (2) is matched by year, industry and size. Variables are defined in Table 3.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level when the expected sign is positive or negative.

Our main model includes all firm-year observations from 2007 to 2010. In this case there is a possible distortion of our results. It is possible that a onetime review decision will not be revised in the following years. In our sample a total of 63 firms decide to purchase a review and 8 of them revise their decision afterwards (12.6%). This decline shows at least that there is a freedom to choose. We rerun the logistic model to extract the drivers of the first review decision effect as a robustness check. Subsample (1) of Panel C includes all first review decision firms and the non-reviewed firms (in the total period), subsample (2) matches the first review firms to a control sample (size, industry, year). The overall results stay mainly the same for the *DDM*-Model. In the MJM-Model the accruals are slightly not significant on a 10% level.

Furthermore, we use a logistic regression with two-way clustering (year and firm; Peterson (2009)) to check for the appropriateness of our model. The results support our main model. The *EM* variable for the earnings-increasing subsample shows a positive influence (*DDM_POS*: coef.: 4.003, *t-value*: 1.71; *MJM_POS*: coef.: 3.953, *t-value*: 1.69; not tabulated). The results for our additional included variables provide comparable results to the main model. The results of a logistic regression model using industry-level clustering are also in line with the main results (not tabulated).

Additionally, as an alternative measure of *ASSETS* we use the natural logarithm of market capitalization and numbers of employees, respectively. Furthermore we run our model without the winsorization of the variables. Results are qualitatively similar to our main model.

3.6   Conclusions

After the introduction of the Transparency Implementing Act in Germany in 2007, the demand and supply of voluntary auditor reviews for semi-annual financial reports increased from 0.8% to 14.6% in 2007 and increased further to 19.5% in 2010 for a sample of firms listed on the Frankfurt Stock Exchange. The new rules enhanced the information supply, initiated an enforcement system for semi-annual reports, and introduced a liability cap with respect to third-party liability for the auditors. We assume that the new legal environment created by the TDIA led to an increased error announcement risk, which should have a positive influence on the demand for a review.

A review of interim reports could be an appropriate method to release more reliable information and to mitigate the negative consequences for the management and supervisory board.

We build on previous studies, which relate voluntary external audit and review services to agency costs and corporate governance quality, by introducing an error announcement risk factor as a driver for voluntary reviews. We examine a sample of 1,030 firm-years during the time period 2007 to 2010 and provide evidence that error announcement risk affects the demand of voluntary interim review services positively.

Using a logistic regression model with firm-level clustering, and two-way clustering in robustness checks, we test the influence of agency costs, corporate governance quality, and error announcement risk. We measured the risk of error findings with two academic earnings management proxies – the Dechow-Dichev-Model and the Modified-Jones-Model – and include both variables in the logistic regression models. Our findings support the error announcement risk hypothesis for income-increasing companies. For companies with income-decreasing earnings management, there is no significant effect on the review decision. These results are consistent over all additional analysis and robustness checks. The influence of agency costs for income-increasing earnings management is also positive and significant; additional analysis weakens the result and shows a possible non-linear relation. The quality of corporate governance only influences the decision to purchase a review for companies with income-decreasing earnings management. In comparison to the error announcement risk hypothesis, we observe a significant effect of agency costs and corporate governance quality mainly for a 'big firm' subsample. Additional positive influencing factors are size and profitability, which strengthens the signaling effect of a review. On the other hand, the consistent positive relation between error announcement risk and the review decision demonstrates that reviews are used to provide due diligence instead of high earnings quality.

As contributions to the literature, the error announcement risk affects the voluntary demand for review in addition to agency costs and corporate governance factors. As possible guidance for the European Parliament or standard setters worldwide, we provide the first evidence of a relation between the degree of quality within an enforcement system and the demand for voluntary auditor assurance services. The quality of the enforcement system affects the demand and the signal of a voluntary audit services.

4 The Effects of Earnings Management on Enforcement Releases and their Recognition in Audit Fees

Abstract

In 2004 German legislation established the Financial Reporting Enforcement Panel. In 147 cases since then, the panel has ordered the announcement of errors in previously disclosed and audited financial statements of German firms. We use this unique dataset to evaluate the consequences of increasing earnings management over time on enforcement releases and their recognition in audit fees. Ettredge et al. (2010) provide evidence on a phenomenon called 'balance sheet bloat' that is due to income increasing earnings management and later influences the disclosure of misstated financial statements. Thus, the evidence of earnings management recognition in audit fees (Abbott et al. 2006) and the hypothesis of future information content in fees by Stanley (2011) leads us to hypothesize that auditors recognize increasing audit risk in audit fees before the enforcement process starts. We extend related earnings management and audit fee literature by modeling the development of earnings management within the misstatement firms and systematically link it to auditor reactions. We find significant predictive power of different commonly used accrual measures for enforcement releases in the period prior and up to the misstatement period. In this period of time, we also observe an audit fee increase, e.g. the recognition of increased audit risk. We investigate an audit fee effect after the misstatement period but find no significant relation.

Co-author: Manuel Strohmenger

4.1   Introduction

We develop a theory of consequences of earnings management on enforcement releases and how an auditor accounts for those effects when pricing statutory audits. We provide evidence of a link between the phenomenon called 'balance sheet bloat' by Ettredge et al. (2010), the recognition of future information content in audit fees by Stanley (2011) and the charging of audit risks in fees by Simunic and Stein (1996).

In 2004 the Financial Reporting Enforcement Act (BilKoG – Bilanzkontrollgesetz) established an enforcement mechanism in Germany. The enforcement panel was introduced simultaneously with the mandatory implementation of IFRS for German listed firms. It is organized as a public-private two-tier-system and should ensure compliance with IFRS. The Financial Reporting Enforcement Panel (FREP) took up its task in July 2005 and since that time has ordered the announcement of errors in previously disclosed and audited financial statements in 147 cases (as of 12/31/2010). The evaluation of this unique sample is of international interest as it provides a chance to research the efficiency of this two-tier enforcement system in comparison to the public structure in the US or the private body in the UK. Furthermore, it offers the opportunity to investigate the relation between earnings management, enforcement releases and audit risk recognition.

Prior literature provides evidence of the connection between earnings management and the probability of misstated/fraudulent disclosure of financial statements and consequential enforcement releases (Jones et al., 2008). In this study a positive relation between (discretionary) accruals and enforcement releases is observable. Ettredge et al. (2010) document a phenomenon they call 'balance sheet bloat' and its connection to restatements in later periods. That is, the deteriorating situation of a company leads to income increasing earnings management and eventually, erroneous/fraudulent accounting once the managers exhaust the boundaries of GAAP-conforming accounting. With respect to audit fees, Abbott et al. (2006) find a positive significant impact of earnings management on audit fees and Feldmann et al. (2009) report an 'ex post' increase in audit fees for the years subsequent to an enforcement release. After the misstatement period, they assume a loss in organization legitimacy and a higher level of audit risk as reasons for this (upward) price premium. Stanley (2011) investigates influences of future events on audit fees and finds that auditors include future

information by an audit fee premium. Building upon the 'balance sheet bloat' of Ettredge et al. (2010) and earnings management pricing in audit fees by Abbott et al. (2006), and considering the future information hypothesis of Stanley (2011), we predict an 'ex ante' recognition of the increased accounting risk in audit fees for the 'bloat-periods' prior to an enforcement release.

Our first analysis provides additional evidence on the usefulness of (discretionary) accruals models to predict misstatements. Accruals serve as earnings management proxies and indicate the existence of a 'balance sheet bloat'. Our second level of analysis extends the audit fee pricing literature and addresses the consequences of enforcement releases. We extract the audit fee development through the 'balance sheet bloat' periods until the misstatement year and afterwards.

The misstatement-predicting power of earnings management proxies is tested using a pooled logistic regression analysis. We match a sample of firms for which the FREP documented the misstatement of financial statements by an enforcement release (ER-firms) with a control group to evaluate the between-firm differences in earnings management behavior (sample of 172 matched firms). The development of earnings management over time is tested using a conditional fixed-effects logistic regression model to extract the within-firm variation in ER-firms. Audit fee models then allow us to observe the variation in fees over time. Therefore we extend the sample with all available data for the period 2006 to 2010 to 647 firm-year observations. According to our three different methods of investigating fees around the time of an enforcement release ('ex ante', 'ex post', 'total'), we split up the sample to extract the predicted audit fee effects in the related time horizons. We run firm fixed-effects in our regressions for the different time periods.

Our findings show that the level of earnings management for ER-firms is higher than for control firms. This indicates the efficiency of the two-tier system in Germany and is in line with prior studies. In our time-series model we observe a higher level of earnings management in the period of the misstated financial statement and the year before in comparison to prior periods. This provides evidence on the existence of a 'balance sheet bloat'. Applying audit fee models, we find evidence for an 'ex ante' recognized price premium in the fees. This delivers insight into the interaction between earnings management, its recognition in audit risk and the future information content in

audit fees. In our *'ex post'* consideration no significant positive effect on audit fees can be observed.

This study contributes to the literature in three main ways. First, we provide additional evidence on the usefulness of (discretionary) accruals as proxies to predict misstated/fraudulent disclosure of financial statements. In the same manner we show the efficiency of the German two-tier enforcement system and the existence of a 'balance sheet bloat' in this regulatory setting. Second, we find the recognition of higher accounting risk in audit fees before an investigation by the enforcement body even starts. This shows that audit fees contain information about the future. We assume a compensation of a 'bloated' balance sheet by higher audit fees and provide evidence for this relation. In our opinion, this field of research needs further attention to evaluate the information contained in audit fees. Third, the detailed modeling of earnings management development within firms and the systematic linking to auditor reaction are major contributions and extensions to the literature researching consequences of enforcement releases as well as the research on audit fees and its determinants. We consider this as an important contribution as it connects different approaches and streams of accounting research that previously were investigated separately and builds a confound framework for further investigations.

The reminder of the paper is structured as follows: Section 4.2 summarizes the legal environment in Germany with respect to the internal control structures, the audit fee reporting and the enforcement system. Section 4.3 reviews the literature and develops our hypotheses. In Section 4.4 we explain our research design and the sample selection process. Section 4.5 contains the univariate and multivariate results. Section 4.6 concludes and summarizes our results.

4.2   Legal Background – Financial Statement Oversight in Germany

4.2.1   *Management Board, Supervisory Board and Audit Committee*

The internal financial statement oversight of German firms is characterized by a two board structure. The executive board is in charge of the management of the company, thereby its responsibility includes the establishment of reporting systems and the

preparation of financial statements. The supervisory board's main task is monitoring the executive board, thus, inter alia, it is accountable for the examination of financial statements and issues concerning the statutory audit. Since the introduction of the German Corporate Governance Code (GCGC) in 2002 the supervisory board is encouraged to establish an 'Audit Committee which, in particular, handles issues of accounting, risk management and compliance, the necessary independence required of the auditor, the issuing of the audit mandate to the auditor, the determination of auditing focal points and the fee agreement.' (cf. GCGC, Section 5.3.2; Köhler (2005)). The existence of an audit committee is regularly regarded as an important contribution to internal surveillance and an improvement of corporate governance, due to the financial expertise inherent in this council.

4.2.2   Statutory Audit and Audit Fees

The traditional form of external financial statement oversight in Germany is provided by the auditor and the statutory audit. As a consequence of the two-board structure of internal surveillance, it is the supervisory board that is responsible for questions of auditor selection and auditor engagement alike it is the addressee of the long form audit report. As mentioned above, if an audit committee is put in place, those responsibilities are transferred. The mandatory disclosure of audit fees was implemented by the Financial Reporting Enforcement Act and became effective January 1, 2005; hence German Commercial Code (Section 285 No. 17 and 314 (1) No. 9) requires publicly traded firms to disclose fees both for the parent company and for subsidiaries for the following categories: i) audits, ii) other attestation services, iii) tax consultancy and iv) other services. The statutory audit enhances the monitoring function of the internal supervisory bodies and likewise contributes to the credibility and accuracy of financial statements for the benefit of external users.

4.2.3   External Enforcement System

German financial statement oversight was amended and improved by the passage of the Accounting Enforcement Act. The act implemented an enforcement

mechanism examining the compliance of international accounting standards. The enforcement system is organized as a public-private-cooperation of the Federal Financial Supervisory Authority (BaFin), a public authority, and the private organized Financial Reporting Enforcement Panel (FREP). In this two-tiered mechanism the FREP serves as the primary investigative body that examines if (individual and consolidated) financial statements (annual or interim) and the corresponding management reports of firms listed in the regulated market of a German stock exchange comply with the effective accounting standards. As the investigations cannot achieve a full coverage of firms, the investigations of the latest approved financial statements are based on indicators of accounting irregularities and upon random sampling. In the case that the review process indicates reporting contains errors, the concerned firm should publically announce the findings; however, no firm is obliged to cooperate with the FREP. Therefore the second tier of the enforcement mechanism includes the BaFin, which forces the collaboration of firm and/or orders the announcement of accounting errors with sovereign power. This adverse disclosure and the negative publicity are the central sanctioning mechanism of the German enforcement system. The errors are released in the 'Electronic Federal Gazette of Germany' (elektronischer Bundesanzeiger) and in at least one official supra-regional stock exchange gazette.

The FREP has reviewed 625 financial statements and corresponding management reports since the enforcement system became effective in July 2005. The examinations showed that almost one out of every four financial reports contained errors; with a total of 147 error findings (the error rate equals 23.5%) (all numbers as of 12/31/2010; cf. Figure 4.1).

By supporting the supervisory board and the auditor, the primary institutions surveying the compliance of financial statements, the introduced enforcement system is a substantial extension to the financial oversight in Germany, enhancing investor protection as well as the accuracy, transparency and quality of disclosed financial information (Ernstberger et al. (2012b)). With its two-tied structure and the organization as public-private cooperation the German mechanism is unique in its structure. Analyzing the results of the investigations adds a similarly unique perspective to the existing literature and research on international corporate governance, corporate control and auditing settings.

Figure 4.1: Financial Reporting Enforcement Panel Investigations since 2005
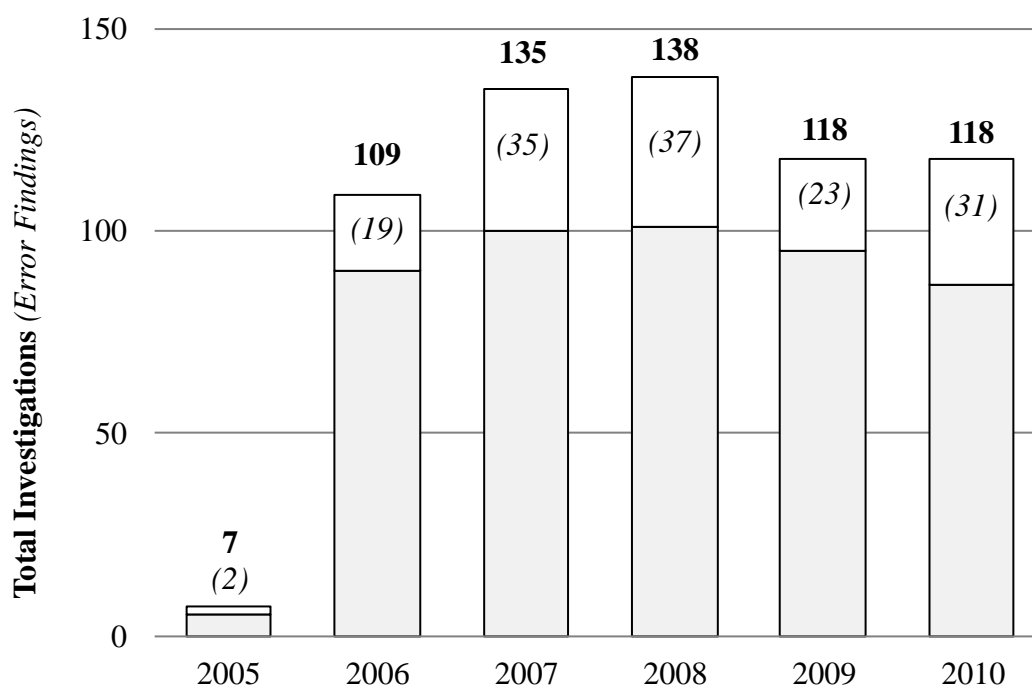
4.3 Literature Review and Hypotheses Development

4.3.1 *The Effect of Earnings Management on Enforcement Releases*

This section develops the framework for the empirical analysis. In the first step, we identify the reasons for enforcement releases that aroused attention in academic research. Our main issues are the examination of the relation between enforcement releases and earnings management as well as internal and external governance structures for the unique German setting. In the second part of the section we investigate the effects of enforcement releases on audit fees.

There is a large body of academic research examining the reasons for the misstatement of financial statements and subsequent enforcement releases. The recent

literature review by Dechow et al. (2010) summarizes determinants and consequences of SEC accounting and auditing enforcement release (AAER) that were identified by accounting research. They state that AAERs are, on the one hand, driven by several firm specific factors; manager compensation, debt covenants, capital market incentives and corporate governance settings (e.g. existence of an audit committee, characteristics of the board of directors, auditor choice) are frequently discussed in the reviewed studies. On the other hand, AAERs are regarded as an indicator of earnings management by the majority of those studies.

The literature provides a vast number of possible motivations for managing earnings and academics have developed different theories: Watts and Zimmerman (1990) introduce the 'bonus hypothesis' and the 'debt hypothesis'. The first says that managers of firms with bonus plans are more likely to use earnings management that affects current period reported income. The latter hypothesis suggests the higher the firm's leverage, the more likely managers upward-manage the income. Dechow et al. (1996) argue that practitioners emphasize the role of financial information in lending and investment decisions by creditors and stockholders as major motivations for earnings management and manipulation.

Jones et al. (2008) and Dechow et al. (2011) use total and discretionary accruals as proxies for earnings management to predict misstated disclosure. Jones et al. (2008) report evidence on ten proxies of earnings management that are significantly associated with fraudulent events. Dechow et al. (2011) find that earnings management is unusually high for firms in their misstating years relative to the entire (control) population of COMPUSTAT firms. The latter study states that 'the overstatement of revenues, misstatement of expenses, and capitalizing costs are the most frequent types of misstatements' and another typical observation around the time of misstatement is a deteriorating firm performance in financial and nonfinancial measures (Dechow et al. (2011), p. 76).

Ettredge et al. (2010) expand this view by investigating the development of earnings management prior to restatements of financial reports and to AAERs. They list various incentives for earnings management i.e. for reasons of avoiding debt covenant violations, seeking low-cost external financing, enhancing stock-based compensation or meeting analyst earnings expectations. As an extension they document a phenomenon

they call 'balance sheet bloat' and define it as the accumulation of large non-cash working capital accounts caused by aggressive accounting choices. They assume (and provide evidence) that managers tend to systematically accumulate income-increasing accounting choices prior to the restatement/enforcement release period and use their discretion to manage earnings. If firm performance does not improve, the balance sheet gets bloated more and more. Hence, Ettredge et al. (2010) consider the enforcement releases caused when managers cross into erroneous/fraudulent accounting after they have exhausted the boundaries of GAAP-conforming accounting.

The first part of our study contributes to this line of research by analyzing if accruals, financial and nonfinancial information are useful for identifying FREP enforcement releases, our proxy for intended and non-intended misstatements.

Reviewing the former enforcement releases of the German enforcement system it becomes apparent that the majority is related to the proper application of fair-value-measurement (2008: 70%, 2009: 61%, 2010: 61%). Thereby most of the errors induce revenue/expense and earnings consequences (FREP, 2010). Furthermore, it seems as if the violations are not one-time occurrences, but rather evidence of structural weaknesses in the firm's accounting and corporate governance settings. Von Keitz and Wenk (2010) report that on average firms are obliged to disclose 4.2 errors per error announcement and document that 7.5% of firms' disclosures are due to a public error announcement in more than one case (the share of firms with more than one error announcement equals 12.9% in our sample).

Based on the related literature on enforcement releases and the error findings by the FREP we do not consider the misstatements detected by the German enforcement system to be random occurrences of unintentional mistakes. Rather, we think that errors are driven by two main causes. First, the increasing complexity of accounting standards might cause misstatements in accounting, especially if the reports and firm structures become vast. Second, we expect earnings management to a driver of errors and subsequent enforcement releases. The academic framework, as well as the empirical evidence connecting misstatements/enforcement releases to earnings management, is unambiguous. Therefore, we expect to find evidence of a positive relation between earnings management and a subsequent enforcement release when comparing ER-firms to a matched sample of control firms:

H4.1a: Earnings management is higher for ER-firms disclosing an erroneous financial
statement than for a Non-ER-control-sample.

Firms and management have vast incentives and motivations to manage earnings and these accounting choices lead to bloated accounts. If steadily applied, these practices might cause GAAP-violated financial reports. We analyze this time series perspective of earnings management and expect to find evidence of an existing 'balance sheet bloat' prior to the enforcement release:

H4.1b: Earnings management increases the probability of disclosing an erroneous
financial statement; a balance sheet bloat can be observed over time for ER-
firms.

As discussed above, the violations of GAAP can be regarded as evidence of internal and external structural weaknesses in the firm's accounting and corporate governance settings. Internal control systems and corporate governance structure are related to both, earnings quality and the likelihood of an enforcement release (Dechow et al., 2010). Compared to control firms, AAER-firms suffer from a weak monitoring of management (characteristics of board of directors, outside major shareholders) (Dechow et al., 1996) and are less likely to have (active and independent) audit committees. As an internal control mechanism an audit committee improves the corporate governance structure and reduces the agency costs by monitoring financial reporting quality. Therefore, we predict a lower error rate for firms that establish a voluntary audit committee:

H4.2: ER-firms disclosing an erroneous financial statement are less likely to have
established a voluntary audit committee than a Non-ER-control-sample.

The task of an auditor and the statutory audit as an external control structure is comparable to internal control functions of an audit committee. Farber (2005) reports that AAER-firms are audited by BIG4-auditors more rarely. Consequently, we predict a

negative relation between an ER-firm and an (high quality) audit supplied by a Big4 auditor:

H4.3: ER-firms disclosing an erroneous financial statement are less likely to be audited by a BIG4-auditor than a Non-ER-control-sample.

4.3.2   The Recognition of Enforcement Releases in Audit Fees

Literature has shown that enforcement releases and restatements induce various (unfavorable) effects for firms and directors: Increases in the firm's cost of equity capital (Hribar and Jenkins, 2004), more negative returns (Palmrose et al., 2004), higher manager turnover rates (Feroz et al. (1991), Desai et al. (2006), Feldmann et al. (2009)) as well as outside director turnover rates (Srinivasan, 2005) are documented.

Feldmann et al. (2009) investigate post-restatement audit fees and find evidence that fees are affected via a higher audit risk on those clients. The auditor has to adjust the audit plan according to the risk of loss on the engagement and increase the planned audit hours to gather additional evidence if required. According to the International Standard on Auditing 315.5 the 'auditor shall perform risk assessment procedures to provide a basis for the identification and assessment of risks of material misstatement at the financial statement and assertion levels.' The primary risks affecting the auditor can be split up into client business risk, audit risk, and auditor business risk (Johnstone, 2000). Audit risk is defined as the risk of an auditor *not* detecting material misstatements in a financial statement, when they in fact exist, and *not* modifying her judgment (e.g. to a qualified opinion). Auditor business risk is the risk that an auditor incurs litigation or reputation losses arising in connection with audited financial statements (Stanley, 2011). Empirical studies of audit fees document that higher client business risk is positively related to higher audit fees (Hay et al. (2006); Hay (2012)). Following the audit pricing models by Simunic (1980) and Simunic and Stein (1996) this increase in audit fees can be split into the influence on the auditor's effort (audit risk) and a price premium covering 'an expected liability loss' (auditor business risk; Beatty (1993)).

Prior empirical studies examining the determinants of audit fees provide results of a negative correlation between audit fees and the current economic situation of a client. Important client characteristics are size, complexity, profitability, debt levels and structural weaknesses in control systems (see the meta-analysis by Hay et al. (2006)). Further studies relate academic measures of earnings management to audit fees. Charles et al. (2010) show the association between financial reporting risks (measured by the Modified-Jones-Model and additionally by a commercial risk measure) and Big4 audit fees. Abbott et al. (2006) find that high (low) earnings management risk is associated with higher (lower) audit fees. They interpret the findings as consistent with a conservatism bias on the part of auditors (arising from asymmetric litigation risk).

In this study we analyze the impact of publically disclosed enforcement releases by the FREP on a firm's audit fees. In this case we can obtain a high level of confidence in identifying firms with material misstatements in its financial statements (with the public announcement of the misstatements by the FREP), relative to studies that approximate misstatements by earnings-based measures such as (discretionary) accruals. Unidentified earnings manipulations, limited budget and capacities by the enforcement panel, as well as selection bias, are potential disadvantages of using enforcement releases as objective ex post audit risk and auditor business risk proxies (Dechow et al., 2010).

Our study extends the literature with two contributions from the following research questions: (1) Does the auditor charge an *ex ante* additional price premium in the audit fees for ER-firms? (2) Does the auditor charge an *ex post* additional price premium in the audit fees for ER-firms?

Related to the first question, we combine theories and findings of several prior studies: Literature has shown that enforcement releases are the consequence of earnings management practices (Jones et al., 2008) and that earnings management accumulates in 'bloated' balance sheets (Ettredge et al., 2010). Abbott et al. (2006) show that earnings management maps into higher audit fees and Stanley (2011) shows that auditors anticipate future information during the pricing of audits. We extend literature by linking these streams of research.

Stanley (2011) investigates whether audit fees are a leading indicator of client business risk and contain potential information for stakeholders. He finds a link between observed audit prices (as risk indicator) and future changes in clients' economic

condition. Thus the auditor includes a future business risk component (premium) in the audit fees to compensate for the additional risk of the anticipated changes. The systematic accumulation of income-increasing accounting choices in the periods prior to and including the restatement and/or an enforcement release ('balance sheet bloat') investigated by Ettredge et al. (2010) shows an increasing enforcement risk over time as the boundaries of the GAAP are approached/crossed. Altogether, the future information contained in audit fees and the enforcement release risk that is driven by accumulated earnings management leads to the assumption that ER-firms have a different auditor business risk than non-ER-firms and higher audit fees, holding other business risk drivers constant.

We assume that this development over time is observable for and anticipated by the auditor and that she rationally reacts in two ways: Firstly, by an adjustment of planned work effort (audit hours) on those clients and secondly by charging the ER-firms an additional audit business risk premium. Therefore we build the hypothesis:

H4.4: Audit fees are ex ante higher for ER-firms in comparison to a Non-ER-control-sample.

The timeline of information recognition could be as follows: Some periods in advance, the firm starts to manage earnings (e.g. in year *t-3*). This behavior is subsequently realized by the auditor with a time lag of at least one period. The auditor anticipates the future relevance of the aggressive earnings management and considers consequences for the audit risk of the client (e.g. in period *t-1* and/or *t*). Figure 4.2 gives an overview of the divided time horizon in an 'ex ante audit risk recognition'-period and an 'ex post audit risk recognition'-period.

Figure 4.2: Timeline of Audit Risk Recognition
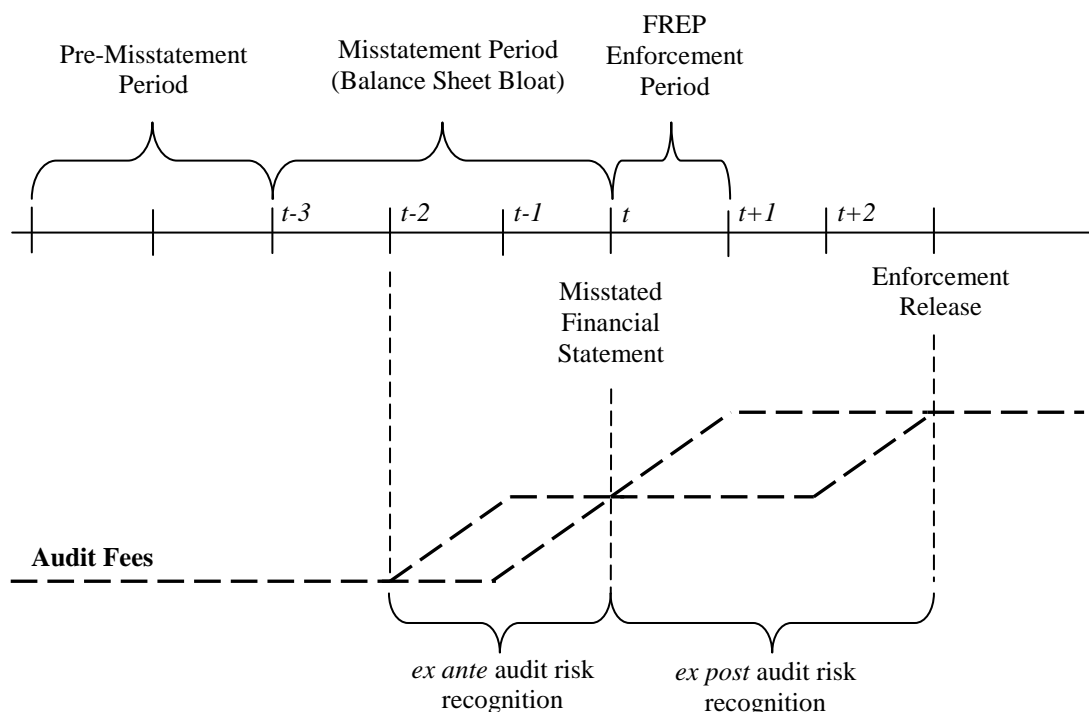
We motivate the second research question of an additional *ex post* price premium by the following prior findings: Feldmann et al. (2009) investigate the influence of financial restatements on audit fees. They find evidence that post-restatement audit fees are higher for restatement firms compared to a control group. Two reasons are alleged: On the one hand, restatement firms suffer from a loss of organizational legitimacy; the restatement reduces both the reliability of a firm's financial reporting system and the assessment of expertise of the executive management entrusted with the preparation of the financial statements (Arthaud-Day et al., 2006). On the other hand the occurrence of accounting errors and/or subsequent enforcement releases (should) alter the auditor's attitude towards the client and hence her assessment of audit risk. A decline in the client's trustworthiness, credibility and competence regarding the accounting process, the risk of high earnings management (Bedard and Johnstone, 2004) as well as weak internal control structures (Raghunandan and Rama, 2006) are influencing factors, put forth as reasons for an increased audit risk. All these factors are shown to be connected to

financial restatements and enforcement releases. As a consequence of both arguments the auditor is obliged to face this by adjusting her professional skepticism towards those clients and thus expand audit procedures and audit efforts. The higher audit costs have to be borne by the clients as higher audit fees subsequent to error findings and related enforcement releases. This leads to the following hypothesis:

H4.5: Audit fees are ex post higher for ER-firms in the periods following the misstated financial statement in comparison to a Non-ER-control-sample.

New examinations by the FREP are restricted by law to the most recent approved (consolidated) financial statements and the latest management report published by the firms under investigation. Thus the FREP has to take up its examination process within a few months following the disclosure of financial statements. The point in time of public announcement of the error finding (the enforcement release) can differ depending on the agreement or disagreement of the enforced company. On average errors are announced 652 days after the fiscal year-end for the corresponding statement, but the standard deviation is high at 276 days. This time lag and the different steps of disclosure (ad-hoc disclosure and official disclosure in the 'Electronic Federal Gazette') make it difficult to identify the exact date of release of the error announcement. In any case, between the enforcement of the financial statement by the FREP and the following annual report, the result of the enforcement action must delineate and be recognized by the auditor (as additional private information) and thereby should affect the following annual audits. Therefore we expect to find influences on audit fees in the year directly subsequent to the year of an erroneous financial statement ('start period' for investigations) and the following fiscal periods until the public announcement of the enforcement release ('ex post audit risk recognition'-period: e.g. *t+1* until *t+n*). See again Figure 4.2 for graphical clarification of this process. A possible combination of both effects respectively a singular ex ante / ex post recognition leads to a concluding overall hypothesis:

H4.6: Audit fees are higher for ER-firms in comparison to a Non-ER-control-sample.

4.4   Research Design and Sample Selection

4.4.1   Earnings Management Model

Literature provides insights into determinants that are useful for detecting restatements. Jones et al. (2008) use ten different proxies to predict misstated/fraudulent financial statements and find a significant positive influence of all the accrual measures. They start with total accruals and investigate whether the explanatory power of the model is enhanced when accruals are substituted by different discretionary accruals measures. They find that *not all* discretionary accrual models have incremental prediction power. Bayley and Taylor (2007) show for a sample of 129 AAER firms (and a matched control group) that total accruals are more useful than various discretionary accrual measures in identifying accounting misstatements. They conclude that earnings quality studies 'should move away from further refinements of accrual models and instead consider supplementing [total or discretionary] accruals with other financial ratios' (Dechow et al. (2011), p. 23); Dechow et al. (2011) provide further evidence. Important to mention when reviewing the literature is that the measures of discretionary accruals tend to be positively related with the level of total accruals (Dechow et al., 2010). We provide evidence for both aspects. First, we include total accruals and various measures of discretionary accruals to add additional evidence to the literature. Second, we include financial statement and non-financial information to follow the proposition by Bayley and Taylor (2007) and Dechow et al. (2011).

To test hypotheses *H4.1a*, *H4.2* and *H4.3* we measure the following robust logistic regression:

$$ER_{i,t} = \beta_0 + \beta_1 LEV_{i,t} + \beta_2 ROA_{i,t} + \beta_3 \Delta AR_{i,t} + \beta_4 \Delta INV_{i,t} + \beta_5 AC_{i,t} + \beta_6 BIG4_{i,t} + \beta_7 EM_{i,t} + \varepsilon_{i,t} \qquad (4.1)$$

Table 4.1 provides detailed definitions of all variables. *ER* is a dichotomous variable that equals 'one' for firms disclosing a financial statement announced as erroneous by FREP for the year of the misstatement and 'zero' for the control group of firms (matched by total assets, industry and financial year). To test the influence of earnings management (*EM*) on the probability of *ER* (*H4.1a*) we include four *EM*-proxies (discussed below) for total and discretionary accruals. *H4.1a* predicts a positive influence

Table 4.1: Definition of variables

$ER_{i,t}$	Binary variable that takes a value of one in period t for firm i disclosing a misstated financial statement in period t, zero otherwise.
$ER\_bloat_{i,t}$	Binary variable that takes a value of one in period t and t-1 for firm i disclosing a misstated financial statement in period t, zero otherwise.
$ER\_time_{i,t}$	Enforcement release variable substituted by ER_ex_ante, ER_ex_post and ER_total.
$ER\_ex\_ante_{i,t}$	Binary variable that takes a value of one in period t and t-1 for firm i disclosing a misstated financial statement in period t, zero otherwise.
$ER\_ex\_post_{i,t}$	Binary variable that takes a value of one in period $t+n$ $(n>1)$ for firm i disclosing a misstated financial statement in period t, zero otherwise.
$ER\_total_{i,t}$	Binary variable that takes a value of one in period t-1, t and $t+n$ $(n>1)$ for firm i disclosing a misstated financial statement in period t, zero otherwise.
$LEV_{i,t}$	Total debt divided by total assets of firm i in period t. We winsorize LEV at the top and bottom 1 percent.
$ROA_{i,t}$	Income before extraordinary items plus net-of-tax interest expense deflated by average total assets of firm i in period t. We winsorize ROA at the top and bottom 1 percent.
$AR_{i,t}$	Sum of accounts receivables scaled by total assets of firm i in period t. We winsorize AR at the top and bottom 1 percent.
$\Delta AR_{i,t}$	Change of net accounts receivables of firm i in period t scaled by lagged total assets where the change of net accounts receivables is calculated as the difference between net accounts receivables in period t and net accounts receivables of period t-1. We winsorize ΔAR at the top and bottom 1 percent.
$INV_{i,t}$	Sum of inventories scaled by total assets of firm i in period t. We winsorize INV at the top and bottom 1 percent.
$\Delta INV_{i,t}$	Change of net inventories of firm i in period t scaled by lagged total assets where the change of inventories is calculated as the difference between inventories in period t and inventories of period t-1. We winsorize ΔINV at the top and bottom 1 percent.
$AC_{i,t}$	Binary variable that takes a value of one if firm i has voluntarily established an audit committee in line with the German Corporate Governance Code in period t, and zero otherwise.
$BIG4_{i,t}$	Binary variable that takes a value of one if firm i has a '$BIG4$' auditor in period t, and zero otherwise.
$ASSETS_{i,t}$	Natural logarithm of total assets of firm i in period t.
$EM_{i,t}$	Earnings Management variable substituted by ACC, MJM, MJM_ROA and DDM of firm i in period t.

Table continued on the next page

Table 4.1: Definition of variables (continued)

$ACC_{i,t}$	Change of non-cash total accruals scaled by lagged total assets of firm i in period t where the change of non-cash total accruals is calculated as the difference between net income before extraordinary items and cash flow from operations.
$\Delta SALES_{i,t}$	Change of revenues of firm i in period t scaled by lagged total assets where the change of revenues is calculated as the difference between revenues in period t and revenues of period t-1.
$PPE_{i,t}$	Gross property, plant and equipment of firm i in period t scaled by lagged total assets.
$MJM_{i,t}$	Total signed discretionary accruals for firm i in period t measured as the residual from the Modified-Jones-Model (Dechow et al., 1995) estimated for each year and industry combination (12-industry classification by Fama and French, 2008) with at least 5 observations, scaled by total assets. We winsorize MJM at the top and bottom 1 percent
$MJM\_ROA_{i,t}$	Total signed discretionary accruals for firm i in period t measured as the residual from a Modified-Jones-Model with performance adjustment (Kothari et al., 2005) estimated for each year and industry combination (12-industry classification by Fama and French, 2008) with at least 5 observations including lagged return on assets, scaled by total assets. We winsorize MJM_ROA at the top and bottom 1 percent.
$WC\_ACC_{i,t}$	Change of non-cash working capital accruals scaled by lagged total assets of firm i in period t where change of non-cash working capital accruals is calculated as the difference between net income before extraordinary items plus depreciation and cash flow from operations.
$CFO_{i,t}$	Cash flow from operating activities scaled by the lagged total assets of firm i in period t ($CFO_{i,t-1}$ and $CFO_{i,t+1}$, respectively).
$DDM_{i,t}$	Working capital signed discretionary accruals for firm i in period t measured as the residual from the Dechow-Dichev-Model (Dechow and Dichev, 2002) estimated for each year and industry combination (12-industry classification by Fama and French, 2008) with at least 5 observations, scaled by total assets. We winsorize DDM at the top and bottom 1 percent.
$A\_FEE_{i,t}$	Natural logarithm of audit fees for firm i in period t where audit fees are 'audit fees' billed by the firm´s statutory auditor as reported in the firm´s annual report according to the German Commercial Code in the four categories audit fees, audit-related fees, tax fees and all other fees.
$AUDCHG_{i,t}$	Binary variable that takes a value of one if firm i´s auditor in period t is different from the auditor in period t-1, and zero otherwise.

of earnings management on the dependent variable *ER*. For *H4.2* we include a binary variable equal to 'one' for the existence of an audit committee (*AC*) and predict a negative relation between an enforcement release and the existence of an audit committee. The voluntary set-up of an audit committee and the mandatory membership of a financial expert in the committee should improve the corporate governance structure and mitigate the accounting and misstatement risk. *H4.3* assumes a lower enforcement release risk for a *BIG4*-audited firm, with a *BIG4* auditor as a proxy for high audit quality. We include the control variables financial leverage (*LEV*), return on assets (*ROA*), change in accounts receivables (Δ*AR*) and change in inventories (Δ*INV*) in our models. The variable *LEV* controls for the financial structure and refers to the so-called 'debt hypothesis' of the management. The variable *ROA* is a proxy for the profitability and is linked to the so-called 'bonus hypothesis' of the management. Following Dechow et al. (2011) the misstatement of the accounts receivable improves sales growth and the misstatement of inventory improves gross margin. Both metrics are closely followed by investors. Therefore we predict a positive influence of Δ*AR* and Δ*INV* on an enforcement release.

We include the following proxies for earnings management, hence for the *EM* variable, in *Model 9*: Measures of discretionary accruals are (at least) partly responsible for the amount of total accruals (Dechow et al., 2010). In our first regression we regard total accruals, before modeling the accrual accounting process in detail. We calculate the total accruals (*ACC*) as differences between income before extraordinary items and operating cash flow for year *t*. Our discretionary accrual models include the Modified-Jones-Model (*MJM*; Dechow et al. (1995))

$$ACC_{i,t} = \beta_0 + \beta_1\left(1/ASSETS_{i,t-1}\right) + \beta_2\left(\Delta Sales_{i,t} - \Delta AR_{i,t}\right) + \beta_3 PPE_{i,t} + \varepsilon_{i,t} \quad (4.2)$$

and the performance-matched Modified-Jones-Model (*MJM-ROA*; Kothari et al. (2005))

$$ACC_{i,t} = \beta_0 + \beta_1\left(1/ASSETS_{i,t-1}\right) + \beta_2\left(\Delta Sales_{i,t} - \Delta AR_{i,t}\right) + \beta_3 PPE_{i,t} +$$
$$\beta_4 ROA_{i,t-1} + \varepsilon_{i,t} \qquad\qquad (4.3)$$

to predict the discretionary accruals. As accrual quality model we use the Dechow-Dichev-Model (*DDM*; Dechow and Dichev (2002)):

$$WC\_ACC_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \varepsilon_{i,t} \qquad (4.4)$$

Working capital accruals (*WC_ACC*) are computed as net income before extraordinary items plus depreciation minus operating cash flows for year *t*. All variables are scaled by lagged total assets. We run *Model 4.2* to *4.4* cross-sectional for at least 5 observations of each year and industry combination (12-industry classification by Fama and French (2008)). We include all available companies of the German Stock market. The residuals are used as measure for the discretionary accruals (*MJM, MJM_ROA,* and *DDM*).

Additionally to the single period model, we include a time series perspective to provide further evidence of an existing 'balance sheet bloat' (Ettredge et al. 2010). According to hypothesis *H4.1b,* we search for evidence of earnings management preceding the misstatement reporting period. Using a conditional fixed-effects logistic regression model, we test the relation between earnings management and a misstated financial statement over time:

$$ER\_bloat_{i,t} = \beta_{0_i} + \beta_1 ASSETS_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 AR_{i,t} +$$
$$\beta_5 INV_{i,t} + \beta_6 EM_{i,t} + \varepsilon_{i,t} \qquad (4.5)$$

ER_bloat is a dichotomous variable that equals 'one' for firms disclosing a financial statement announced as erroneous by FREP for the year of the misstatement (period *t*) and in the period before (period *t-1*); zero otherwise. We include all ER-firm years from 2005 to the period of the misstated financial statement, e.g. we compare the time window in the period around the misstatement (*t* and *t-1*) to the prior years. Based on the included firm-level fixed effects, we drop the proxies for corporate governance (*AC*, *BIG4*; low level of 'within' variation). We add a size proxy and the total values of accounts receivable and inventories (scaled by total assets) instead of their change as in *Model 4.1*.

4.4.2 Audit Fee Model

To test the hypotheses *H4.4* to *H4.6* on the influence of high enforcement release risk/misstatement risk on audit fees we estimate the following fixed-effects within regression (considering robust standard errors):

$$A\_FEE_{i,t} = \beta_{0_i} + \beta_1 ASSETS_{i,t} + \beta_2 LEV_{i,t} + \beta_3 ROA_{i,t} + \beta_4 AR_{i,t} + \beta_5 INV_{i,t} +$$
$$\beta_6 AC_{i,t} + \beta_7 BIG4_{i,t} + \beta_8 AUDCHG_{i,t} + \beta_9 ER\_time_{i,t} + \varepsilon_{i,t} \quad (4.6)$$

where *A_FEE* is equal to the logarithm of audit fees. We test the relation between audit fees and enforcement releases in three ways: *H4.4* suggests higher audit fees for ER-firms in the periods up to the misstatement period, i.e. we assume a possible anticipatory recognition of a high accounting risk company by an audit fee premium charged by the auditor (see Figure 4.2: '*ex ante*' recognition period). *H4.5* assumes an audit fee increase after the disclosure of the misstated financial statements (see Figure 4.2: '*ex post*' recognition period). Hypothesis *H4.6* predicts an overall audit fee increase for ER-firms (combination of '*ex ante*' and '*ex post*' recognition period). To extract these three effects we substitute *ER_time* in *Model 4.6* by three different binary variables (*ER_ex_ante, ER_ex_post, ER_total*) and thus three different sub-samples. The sample selection (see below) results in 130 firms in the time period *t*, for which audit fees are available (65 ER-firms and 65 control firms). The selected observation period from 2006 to 2010 provides the opportunity to divide the sample into different fractions. To test *H4.4* we only include the misstatement period as well as all available data for the sample in the years *ex ante*, e.g. until 2006. This leads to an unbalanced sample/panel. The dichotomous variable *ER_time* is substituted by *ER_ex_ante*, which equals 'one' in periods *t-1* and *t* for firms disclosing a misstated financial statement in period *t*, and 'zero' otherwise. For *H4.5* we consider firm year observations of the misstatement year and all following periods. *ER_ex_post* equals 'one' in *t+n (n>0)* if the firm discloses misstated financial statements in period *t*, and 'zero' otherwise. For *H4.6* we include all available firm-years in our sample. Hence, *ER_total* is equal to 'one' from *t-1* until *t+n* if the firm discloses a misstated financial statement in period *t*, otherwise zero. In all three cases we predict a positive influence on audit fees.

To control for other fee drivers, we include firm and auditor attributes identified by prior research to be associated with the remuneration of auditors (Hay et al., 2006). We include the variable *ASSETS* to control for the size effect. As a proxy for financial risk, our firm-related control variable is total debt deflated by total assets (*LEV*). Return on assets (*ROA*) as a measure of profitability and the extent to which the auditor may be exposed to liability in case that a client fails (auditor risk). The variables *AR* and *INV* – accounts receivables and inventories deflated by assets – control for higher risk of error and requiring specialized audit procedures and high audit effort (Hay et al., 2006). As a proxy for the corporate governance quality we include a binary variable for the (voluntary) existence of an audit committee (*AC*). As an audit attribute control variable we include auditor type (*BIG4*). Additionally, we assume a negative correlation between auditor changes (*AUDCHG*) and audit fees (DeAngelo (1981); Kanodia and Mukherji (1994)).

4.4.3   Sample Selection and Data

To access prior error findings we follow the procedure suggested by the FREP: We use the official website of the Electronic Federal Gazette of Germany and search the page for 'error announcements' (Fehlerbekanntmachungen). This procedure returns a list of 147 separate announcements from 2005 to 12/31/2010. Based on these error findings we start our sample-selection procedure: 7 observations of firms with head offices outside of Germany are eliminated. We do not include banks, insurance companies and similar financial-services firms in our study (e.g. Gassen et al. (2006); Leuz et al. (2003)); hence 30 observations are deleted. We collect our financial data from the Worldscope database; 24 findings are deleted due to missing data availability. Thus our final sample of firms that has been subject to FREP accounting enforcement releases (ER-group/firm) consists of 86 observations.

For each of the 86 ER-firms, we identify a control firm. The control group is matched by industry (same Fama and French (2008) 12-industry classification), year (year of matching is the year of the ER-firm's erroneous statement) and size (minimum of absolute difference in total assets) (Dechow et al. (1996); Beneish (1999); Peasnell et al.

(2001)). To be considered as a potential control firm in the selection process, a firm has to be located in Germany, must not be a provider of financial services and must not be subject to enforcement-actions by the FREP in any regarded year in this study.

The data for the variables was obtained as follows: We hand-collected the information about the year-end auditors and for the existence of an audit committee in a firm from the annual financial statements for the years 2005 to 2010. Information about the audit fees is also hand-collected from the annual financial statements. The disclosure of audit fees and the use of international accounting standards became mandatory in 2005. To exclude this event period as well as possible biases due to the IFRS implementation in this year, we start to collect the audit fees since 2006. All other data used in our calculations are obtained from the Worldscope database for the years 2005 to 2010.

4.5   Empirical Results

4.5.1   Descriptive Statistics and Univariate Results

Table 4.2 provides descriptive data and basic statistics for the sub-samples of ER- and control firms. In general mean and median values for the variables applied in our models do not essentially differ, which shows no bias in the dataset.

Due to the matching procedure the ER-firms and their controls cannot be distinguished by size. Although on average the control firms report fewer *ASSETS* (mean total assets €3,430 million) than the ER firms (mean €5,800 million), the t-test does not indicate significant differences (also for log-assets). This suggests the success of our matching procedure. An audit committee (*AC*) is set up by 37% of the ER-firms and 45% of the control firms. Only 43% of the ER-firms engage a *BIG4* auditor for their year-end audit. This is relatively low compared to the 60% of control firms that engage a *BIG4* auditor; accordingly a highly significant t-test confirms the difference. Furthermore, differences in *LEV* can be observed (means 0.19 vs. 0.26) and the t-test confirms the higher level of indebtedness of the ER firms. This univariate result can provide a first signal of one important incentive for earnings management within the ER-firms. The

firms subject to a FREP enforcement release are less profitable than the controls as the *ROA* affirms (difference in means: -2.4%; no significance). The mean reported numbers for *AR*, Δ*AR* as well as *INV* and Δ*INV* differ marginally between the two compared sub-samples; t-tests show no distinction. Audit fees are on average higher within the control firms (mean €0.72 million vs. €0.51 million), but the variation of the reported numbers is large in both sub-samples as high standard deviations and high differences between mean and median values are shown. The t-test on this variable does not indicate significant differences between the two groups.

Table 4.2, Panel A also provides descriptive statistics for our different measures of (discretionary) accruals, again separately for the control firms and the ER-firms. The main finding of analyzing univariate differences between the sub-samples is that ER-firms' accrual numbers are higher than those of the control group. The misstated financial statements contain larger total accruals than the compared reporting of the control firms (means of Control vs. ER-firms: *ACC* -0.04/0.003; t-test significant). Separating the discretionary component from the total accruals number, i.e. by using the Modified-Jones-Model and respectively the performance-matched Modified-Jones-Model, results in higher discretionary accruals measures for the ER-firms in both models (means of Control vs. ER-firms: *MJM* 0.00/0.04; *MJM-ROA* 0.00/0.05). Again the t-tests as well as the median values confirm the distinction. Measuring estimation errors in working capital accruals by applying Dechow and Dichev's (2002) model, results in the same conclusion: Estimation errors and hence abnormal accruals are high for ER-firms in terms of mean and median values; t-tests confirm the differences (means of Control vs. ER-firms: *DDM* 0.00/0.04). Summing up, we find various indications, on a univariate basis, for the large use of (income increasing) accrual accounting choices within the ER-firms' financial statements and hence first evidence of our hypotheses suggesting that enforcement releases are driven by earnings management.

Panel B of Table 4.2 contains the Pearson/Spearman correlation matrix between the variables described above. We limit our commentary to the strongest correlations observable: The decision to engage a *BIG4* auditor is correlated with the size (*ASSETS*) of the firm (Pearson corr. coeff. ρ=0.50). *BIG4* also shows significant correlations with the ER-dummy (ρ=-0.17) and the existence of an audit committee (ρ=0.50). The existence of an audit committee is largely dependent on firm size (ρ=0.57). This is not

Table 4.2: Descriptive statistics and correlation

Panel A: Descriptive statistics for the Control and the ER sample

Variables	n	Control firms Mean [Prop.]	Mdn	S.D.	Min	Max	ER firms Mean [Prop.]	Mdn	S.D.	Min	Max	Mean diff.
ASSETS (Mio. €)	86	3,430	140	19,000	2.70	174,000	5,800	130	29,000	1.42	210,000	2,370
ASSETS (ln)	86	19.11	18.76	2.15	14.81	25.88	19.06	18.68	2.35	14.16	26.08	0.047
LEV	86	0.19	0.14	0.21	0.00	0.94	0.26	0.23	0.21	0.00	0.94	-0.068**
ROA	86	0.04	0.05	0.13	-0.52	0.34	0.01	0.04	0.14	-0.52	0.34	0.024
AR	86	0.23	0.20	0.12	0.04	0.58	0.20	0.20	0.11	0.02	0.58	0.026
ΔAR	86	0.02	0.02	0.10	-0.25	0.48	0.04	0.02	0.14	-0.25	0.48	-0.023
INV	86	0.12	0.09	0.13	0.00	0.47	0.12	0.09	0.12	0.00	0.48	0.004
ΔINV	86	0.01	0.00	0.05	-0.08	0.22	0.02	0.00	0.09	-0.15	0.35	-0.014
AC	86	[0.45]					[0.37]					0.081
BIG4	86	[0.60]					[0.43]					0.174**
AFEE (Mio. €)	65	0.72	0.21	1.43	0.02	8.00	0.51	0.18	0.98	0.03	5.60	0.210
AFEE (ln)	65	12.43	12.23	1.38	9.95	15.89	12.28	12.11	1.22	10.13	15.54	0.150
ACC	86	-0.04	-0.04	0.12	-0.31	0.43	0.00	-0.03	0.16	-0.43	0.43	-0.043**
MJM	86	0.00	0.00	0.10	-0.27	0.45	0.04	0.02	0.14	-0.35	0.45	-0.039**
MJM_ROA	86	0.00	0.00	0.10	-0.27	0.37	0.05	0.03	0.12	-0.21	0.37	-0.039**
DDM	75	0.00	0.00	0.10	-0.21	0.43	0.04	0.02	0.13	-0.31	0.43	-0.038**

Panel B: Correlation of variables

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)	ER		-0.03	**0.19**	-0.12	-0.10	0.05	-0.01	0.07	-0.08	**-0.17**	**0.16**	**0.16**	**0.22**	**0.16**
(2)	ASSETS	-0.01		**0.31**	0.05	-0.13	-0.04	**0.28**	0.10	**0.58**	**0.48**	**-0.22**	-0.14	**-0.16**	-0.09
(3)	LEV	**0.15**	**0.20**		-0.13	-0.13	-0.10	0.07	-0.06	**0.15**	0.12	-0.05	0.01	0.04	-0.09
(4)	ROA	-0.09	0.08	-0.06		**0.20**	**0.24**	0.14	**0.22**	-0.04	-0.11	**0.40**	**0.37**	-0.09	**0.36**
(5)	AR	-0.11	-0.15	**-0.15**	0.14		**0.25**	0.07	0.03	-0.06	-0.11	**0.21**	**0.15**	0.07	**0.21**
(6)	ΔAR	0.10	0.05	-0.10	0.12	**0.25**		0.05	0.14	-0.05	-0.11	**0.32**	**0.36**	**0.29**	**0.41**
(7)	INV	-0.02	0.11	-0.04	0.12	0.04	-0.01		**0.29**	0.13	0.09	0.11	0.05	0.03	0.06
(8)	ΔINV	0.10	0.15	0.02	0.10	0.04	**0.28**	**0.23**		-0.05	-0.09	**0.33**	**0.32**	**0.32**	**0.40**
(9)	AC	-0.08	**0.57**	0.10	-0.01	-0.06	0.02	0.05	0.02		**0.50**	**-0.18**	-0.15	-0.12	-0.10
(10)	BIG4	**-0.17**	**0.50**	0.06	-0.05	-0.11	-0.04	0.05	-0.07	**0.50**		**-0.18**	-0.14	-0.11	-0.06
(11)	ACC	**0.16**	**-0.23**	-0.05	**0.40**	**0.20**	**0.32**	0.11	**0.33**	**-0.18**	**-0.18**		**0.92**	**0.78**	**0.91**
(12)	MJM	**0.16**	-0.14	0.01	**0.37**	**0.15**	**0.36**	0.04	**0.32**	-0.15	-0.14	**0.92**		**0.86**	**0.89**
(13)	MJM_ROA	**0.22**	**-0.16**	0.04	-0.09	0.07	**0.29**	0.04	**0.32**	-0.12	-0.11	**0.78**	**0.86**		**0.76**
(14)	DDM	**0.16**	-0.09	-0.09	**0.36**	**0.21**	**0.41**	0.06	**0.40**	-0.10	-0.06	**0.91**	**0.89**	**0.76**	

Notes: This table shows descriptive statistics and correlations for the matched sample (172 observations). Panel A provides descriptive statistics of the independent variables. Panel B shows pair-wise Spearman (above the diagonal) and Pearson correlation coefficients (below the diagonal) for all variables. Bold numbers indicate two-tailed significance at the 0.05 level. Variables are defined in Table 4.1.

surprising since forming an audit committee out of an already small supervisory board is neither possible nor useful especially for small firms. This size dependence of *AC* could explain the fact that no significant differences could be found in this variable between the ER-firms and our size-matched control firms.

4.5.2   *Multivariate Results – Earnings Management Models*

Table 4.3 presents the results of our logistic *Models 4.1* and *4.5* concerning our hypothesis on earnings management and the influencing factors on an enforcement release.

We report outcomes for our matched model approach *(Models 4.1)* in Columns (1) to (4). In these specifications we include the ER-firms in the year the FREP documented a misstated financial statement (period *t*) and the corresponding observations of the year, size and industry matched control group. For these two groups of comparison, we regress the disclosure of an erroneous financial statement (as documented by an enforcement release; *ER*) on several control variables included in each of the reported specifications and four measures of (discretionary) accruals.

We find evidence that enforcement releases are driven by earnings management: In accordance with prior literature we measure the misstatement/management of earnings through its accrual component. Therefore we estimate the influence of total accruals on the probability of an enforcement release. As Column (1) shows, total accruals have a significant positive influence on the misstatement probability (coef.=3.05). This is consistent with several studies that also find evidence that total accruals are helpful in identifying material accounting misstatements - without further decomposition in an 'expected' and an unexpected/ discretionary component (Bayley and Taylor (2007), Dechow et al. (2011)).

We investigate the influence of *long-term* discretionary accruals on misstatements by applying two versions of the Jones-Model. The result for the modified Jones-Model (Dechow et al., 1995) shows the expected positive impact on the misstatement probability (coef.=3.17) and is significant at the 5%-level. As Kothari et al. (2005) show an additional control for firm performance within the *MJM* could improve

the measure of discretionary accruals, we additionally report the results for the performance-matched Modified-Jones-Model. As results again show the predicted sign (coef.=3.66) with significance, we find evidence of earnings management via long-term discretionary accruals in our sample.

We further investigate the influence of *short term* accruals on misstatements by applying Dechow and Dichev's (2002) model. This measure of short term estimation errors within the working capital accruals significantly affect the probability of disclosing misstated financial statement and FREP enforcement releases (cf. Column (4); coef.=4.14). The relatively large measures of estimation errors indicate less accrual and earnings persistence within the ER-firms, possibly driven by the extensive use of earnings management practices. Please note, the McFadden pseudo R²s of the four specifications are all around 8%.

To provide further evidence of earnings management causing erroneous disclosure of financial statements, we additionally report outcomes for the conditional fixed-effects model *(Model 4.5)* in Columns (5) - (8) of Table 4.3. In these specifications we include time series data of the ER-firms; the dependent *ER*-variable equals 'one' in the year of the misstatement (period *t*) and in the period before (period *t-1*) and 'zero' in the preceding years.

Ettredge et al. (2010) document that sustained income-increasing earnings management choices accumulate in balance sheet accounts and lead to restatements in the following periods. We find evidence for this phenomenon: The two versions of the Jones-Model indicate the influence of earnings management. Long-term discretionary accruals significantly affect the misstatement likelihood; the regression coefficient for the *MJM* (coef.=3.21) and for the performance-matched *MJM* (coef.=4.12) are positive and significant at the 5%-level. *Short term* accruals also bear incremental information for predicting FREP enforcement releases as the results for the *DDM* show (Column (8); coef.=3.53; significant at 5%-level). The measure of total accruals shows the predicted sign but is not significant for the time series model. The McFadden pseudo R²s of the latter four specifications are higher (around 15%) than for the matched design.

Altogether we gather evidence that supports our earnings management hypothesis *(H4.1a)*. Enforcement releases are driven by the extensive use of discretionary accounting choices. All four model specifications of our matched sample approach show

that earnings management is high for ER-firms and reveal significant influences of accrual measures on the probability of disclosing a misstated financial statement. Further, we find evidence of a long-term balance sheet bloat prior to the misstatement period by means of our time series (fixed-effects) approach. This supports hypothesis *H4.1b*. Steadily applied earnings management results in 'bloated' balance sheet accounts and these practices cause GAAP-violating financial reports.

Regarding the results of the other variables included we come to the following conclusions: We try to capture different internal control systems and the corporate governance structure of the firms by including a dummy variable for the existence of an audit committee in our matched sample approach. Regardless of the (discretionary) accruals measure applied (Columns (1) - (4)), the variable shows no significant influence on the probability of an enforcement release. Hypothesis *H4.2*, which assumes that the audit committee existence decreases the probability of erroneous reporting, is not supported. External controls structures and the audit quality are reflected in the dummy for a *BIG4*-auditor. In all specifications of the matched sample approach the existence of a *BIG4*-auditor reduces the probability of an enforcement release (negative signs on high significance levels). This suggests that the audit quality of a *BIG4*-audit/auditor is superior to others and that this external surveillance of a firm is effective in preventing misstated reporting and enhancing the credibility of financial statements. Hypotheses *H4.3* is affirmed.

Prior research stresses the particular influence of high leverage ratios on the misstatement probability. We find supporting evidence: *LEV* is positively related to the erroneous disclosure of financial statements in all eight specifications (high significance levels). As we expect that the disclosure of misstated statements could be driven by the attempt to mask a weak general firm performance by earnings management, we include *ROA* as control. The results support our suggestion; the probability of erroneous disclosure is significantly negative associated with *ROA* (in all but one case) in both research designs (matched model and fixed-effects model). The significant influences of *LEV* and *ROA* support our findings of a 'balance sheet bloat' as both variables indicate the deteriorating development of the firm situation.

We also include two accrual components in each specification: Receivables and inventories (respectively the change of these variables in the matched model approach).

Table 4.3: Logistic Model of Earnings Management on Enforcement Releases

	Exp. sign	Matched Model					Exp. sign	Fixed-effects Model			
		(1) Coef. (t-value)	(2) Coef. (t-value)	(3) Coef. (t-value)	(4) Coef. (t-value)			(5) Coef. (t-value)	(6) Coef. (t-value)	(7) Coef. (t-value)	(8) Coef. (t-value)
Constant	?	0.027 (0.09)	-0.061 (-0.20)	-0.107 (-0.35)	0.07 (0.20)	ASSETS	+	0.743** (2.06)	0.808** (2.18)	0.770** (2.11)	1.623** (2.67)
LEV	+	1.824** (2.21)	1.705** (2.00)	1.700** (2.00)	1.467** (1.72)	LEV	+	3.678** (2.40)	3.580** (2.30)	3.606** (2.32)	4.116*** (2.44)
ROA	-	-2.813** (-1.76)	-2.645** (-1.80)	-1.307 (-0.96)	-3.657** (-2.10)	ROA	-	-2.326* (-1.43)	-2.754** (-1.71)	-2.037* (-1.49)	-4.683** (-2.26)
ΔAR	+	1.291 (0.83)	1.152 (0.74)	1.223 (0.79)	1.385 (0.67)	AR	+	-0.646 (-0.25)	-0.76 (-0.29)	-0.81 (-0.31)	1.942 (-0.58)
ΔINV	+	0.765 (0.33)	0.998 (0.43)	0.693 (0.29)	0.383 (0.14)	INV	+	8.349** (1.67)	8.371* (1.63)	8.529* (1.65)	8.855* (1.45)
AC	-	0.085 (0.22)	0.066 (0.17)	0.057 (0.15)	0.006 (0.01)						
BIG4	-	-0.731** (-1.97)	-0.755** (-2.01)	-0.760** (-2.02)	-0.856** (-2.12)						
ACC	+	3.053** (1.94)				ACC	+	1.997 (1.21)			
MJM	+		3.170** (1.82)			MJM	+		3.209** (1.69)		
MJM_ROA	+			3.656** (2.08)		MJM_ROA	+			4.124** (1.93)	
DDM	+				4.141** (1.88)	DDM	+				3.533** (1.67)
McFadden R2		0.082	0.079	0.083	0.088	McFadden R2		0.128	0.138	0.144	0.184
Chi2		17.249	16.655	17.747	14.510	Chi2		20.897	22.509	23.518	26.241
Number of Obs.		172	172	172	150	Number of Obs.		189	189	189	170

Notes: This table shows the results of our earnings management models. The *matched model* compares ER-firms to a control sample in the period of the misstated financial statement. The observations are matched by year, size and industry. In all logistic regressions of our *matched model* we use robust standard errors. The conditional *fixed-effects logistic regression model* includes all ER-firms from 2004 to the misstated financial statement period. The depending variable takes a value of one in period *t* (misstatement period) and *t-1* (zero otherwise) to extract the 'balance sheet bloat' effect. Variables are defined in Table 4.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level when the expected sign is positive or negative.

Inventories significantly influence the misstatement likelihood in the fixed-effects models. The other measures show the predicted positive signs in most cases, but without significance. Total assets are included in the fixed-effects models to capture size effects. The results show a positive size dependency of error announcements.

4.5.3   Multivariate Results – Audit Fee Models

Table 4.4 contains the results of our audit fee models *(Model 4.6)*. We present our results for the '*ex ante*', '*ex post*' and '*total*' model. We run fixed-effects regression models.

In the '*ex ante*' model all available 'prior firm-years' are included. This leads to a total unbalanced panel of 308 firm-year observations. The dummy variable *ER_ex_ante* captures the recognition of increased audit risk in and the effects of earnings management on audit fees in *t-1* and *t*. The variable indicates a highly significant increase in audit fees in these periods (coef.=0.105). This leads to a confirmation of *H4.4*. In other words, the auditor realizes and prices the accounting risk increase and the bloating of accounts before the actual misstated financial statement is finally disclosed. Confirming the findings by Stanley (2011), the audit fees contain future information in respect of enforcement release risk.

The '*ex post*' model includes all available firm-years following the misstated financial statement period of our sample. The variable *ER_ex_post* - equal to 'one' for ER-firms after the period *t* - shows no significant influence on the audit fees. Therefore we cannot observe an audit fee increase in the periods after the misstated financial statement is disclosed. *H4.5* must be rejected and the observed audit fee increase by Feldmann et al. (2009) cannot be confirmed.

In the '*total*' model we find a significant positive audit fee effect for a sample of 647 firm-year observations (coef.=0.105). This rise in audit fees shows the combined effect of both recognition periods. *H4.6* can be confirmed. The beta-values of the '*ex ante*' and the '*total*' model are nearly the same. Therefore, we assume the recognition of

Table 4.4: Regression of Enforcement Releases on Audit Fees

	Exp. sign	ex ante Coef. (t-value)	ex post Coef. (t-value)	total Coef. (t-value)
ASSETS	+	0.192***	0.382***	0.296***
		(5.65)	(6.46)	(6.14)
LEV	+	0.428**	0.436**	0.308**
		(1.91)	(2.31)	(2.17)
ROA	-	-0.162	-0.170	-0.322**
		(-1.25)	(-0.81)	(-2.13)
AR	+	-0.246	0.044	0.028
		(-1.12)	(0.15)	(0.11)
INV	+	0.911**	0.531	0.269
		(2.38)	(1.17)	(0.69)
AC	+	0.178	-0.052	-0.039
		(1.19)	(-0.42)	(-0.35)
BIG4	+	0.596***	-0.070	0.039
		(7.30)	(-0.51)	(0.31)
AUDCHG	-	-0.260***	-0.144***	-0.202***
		(-3.01)	(-3.26)	(-4.04)
ER_ex_ante	+	0.105**		
		(1.94)		
ER_ex_post	+		0.040	
			(0.63)	
ER_total	+			0.105**
				(1.70)
Constant	?	8.095***	4.930***	6.550***
		(11.85)	(4.29)	(7.04)
Adj R2		0.261	0.185	0.193
F		20.931	9.388	11.878
Number of Obs.		308	566	647

Notes: This table shows the results of our audit fee models. The audit fee model compares ER-firms to a control sample in different time periods (*ex ante*, *ex post* and *total*). The observations are matched by year, size and industry in the period of the misstated financial statement. In all regressions we use a fixed-effects model to account for the panel data structure. Variables are defined in Table 4.1. *, **, and *** indicate one-tailed significance at the 0.1, 0.05, and 0.01 level when the expected sign is positive or negative.

the risk developed in a 'balance sheet bloat' firm before the misstated financial statement is disclosed.

For the included control variables we observe for all three models a significant positive influence of size and leverage as well as a negative influence of auditor change. Only for the '*ex ante*' model are the variables *BIG4* and *INV* positively related to audit fees at significant levels. *ROA* has a negative influence in the '*total*' model.

4.5.4   Sensitivity Analysis and Limitations

We perform several checks to assert the robustness of our main results and to analyze the sensitivity of variations in our research design. All the results described in this section are not tabulated.

Regarding the analysis of earnings management we modify the matched model approach by comparing the ER-firms to the whole sample of German listed firms (1,925 firm years) instead of matching a control group. The results are stable: total accruals (coef.=4.42; t-stat=4.77), the *MJM* (coef.=4.19; t-stat=4.32), the performance-adjusted *MJM* (coef.=5.18; t-stat=4.95) as well as the *DDM* (coef.=4.36; t-stat=3.92) indicate the influence of earnings management for the erroneous disclosure of financial statements. The results for the control variables are comparable. The conclusions for *H4.1a* are stable.

To further investigate the connection of an audit committee to and the influence of a *BIG4* auditor on the probability of a misstatement (*H4.2* and *H4.3),* we considered interaction terms between the earnings management metrics and the dummy variables *AC* and *BIG4*, respectively. However, we could not find significant evidence for interaction effects. The basic results remain unchanged.

To validate the audit fee results we run the fixed-effects model only with ER-firms. Using this method we extract only the within-firm variation in audit fees over time. The results are stable for all significant variables. Further we analyze the final announcement date of the enforcement release as another '*ex post*' point of time an auditor might adjust audit fees. We run additional regressions for the total period and for the year after the misstatement year and search for an increase in audit fees when the

error finding became public. The results show that the final release provides no new information to the auditor. In both specifications the measure is insignificant (total period: coef.=0.04, t-stat=0.71; years after: coef.=0.03, t-stat=0.53), confirming our main result that the auditor anticipates and prices the FREP error finding in advance.

We winzorise the continuous variables to mitigate the influence of outliers. As this can be critical, we re-run all reported regressions with the original data. The main findings and conclusions are stable; coefficients are similar to the ones reported and significance in general is lower.

Limitations of this study include aspects according to sample size and a possible self-selection bias. The enforcement release as an objective measure of accounting risk includes different negative aspects. First, the budget of the FREP results in a pre-sample selection by the enforcement panel. Second, for the control group the amount of accounting risk is not observable. The ER or non-ER definition does not provide a continuous measure of audit risk. Therefore the matching procedure can lead to different comparability between the samples.

4.6   Conclusion

The Financial Reporting Enforcement Panel took up its task in 2005; until 2010 147 cases error announcement were disclosed. Our study evaluates the unique dataset derived from these error findings. This is of international interest as the German enforcement system is based on two tiers – a private body and a public institution. The EU commission stresses the importance of a strict enforcement of IFRS; we analyze the German implementation as a counterpart to the well-researched public structure enforcement in the US and the private organization in the UK.

Our focus and the contribution to the literature are threefold: First, we provide additional evidence on the usefulness of (discretionary) accruals to predict misstated/fraudulent disclosure of financial statements. Our results show that total accruals, different versions of the Jones-Model as well as the Dechow-Dichev-Model contain incremental information for detecting misstated financial statements. By the use

of logistic panel analysis, we find evidence that firms subject to FREP error announcements can be distinguished from control firms through their use of earnings management (between variation). Analyzing the years prior to the misstatement, we find that these firms excessively use earnings management practices that lead to the 'balance sheet bloat' phenomenon (within variation).

Our second contribution to the literature examines the influence of enforcement releases on audit fees. Resulting from the 'balance sheet bloat' hypothesis (Ettredge et al., 2010) and the audit fee future information content hypothesis (Stanley, 2011) we find a recognition of audit risk in audit fees prior to FREP announcements. We assume auditors compensate for a 'bloated' balance sheet by charging higher audit fees. This adds a new component to the audit fee and enforcement release consequences literature. We do not find evidence of a price premium for audit fees after the disclosure of misstated financial statements.

Third, the detailed modeling of earnings management development within the firms and the systematic linkage to auditor reactions and fee pricing are major contributions and extensions to the 'balance sheet bloat' picture of Ettredge et al. (2010), the literature researching consequences of enforcement releases as well as the research on audit fees and its drivers. Our study connects different approaches and streams of accounting research and builds up a confound framework for further investigations.

5 Summary and Contribution

The legal development and its impact on the German capital market over the last decades motivated this dissertation. Despite the heterogeneity of the legal changes, and its scopes and aims, it is obvious that the legal introductions since 1998 improved capital market efficiency in Germany. In addition to the extent of the disclosure level of financial information, the standard setters increased the audit and enforcement structure of the publicly available annual and interim financial reports. The three studies of this dissertation investigate the relation between voluntary audit service, the efficiency of the enforcement system, the earnings quality and the audit fee recognition. The introduction of the Financial Reporting Enforcement Act in 2005 and the Transparency Directive Implementing Act in 2007 offers unique data to address different research questions with respect to voluntary interim reviews and enforcement releases. The first study (Chapter 2) analyzes the cost and benefit relation of interim auditor review services. The second study (Chapter 3) analyzes the demand and supply of such review service. In the last study (Chapter 4) the enforcement system and its impact on audit fees is investigated.

Chapter 2 focuses on the cost-benefit-relation of voluntary audit services. It provides evidence of an average increase of fees of around 14.5%. After controlling for a possible self-selection bias, the nonlinearity between audit quality demand and size or the corporate governance quality, the results vary from 5.7% to 21.5%. Additionally, the study is the first providing evidence of decreasing year-end audit fees by firms that purchase interim audit services, e.g. a work-shift from year-end to the interim reports.

This can be a sign of an improved reporting process by extending the 'year-end audit' over the total financial year. The model to test the benefits of a semi-annual review on quarterly earnings quality provides no significant effects or improvements. Overall, the cost-benefit-relation differs between firm size, corporate governance quality and the reporting process development.

The unobservable earnings quality effect of voluntary reviews in Chapter 2, leads me to a detailed investigation of the supply and demand drivers in Chapter 3 to get a better understanding of possible benefits. The study builds on previous results, which relate voluntary external review services to agency costs and corporate governance quality, by introducing the error announcement risk as a driver for voluntary reviews. The analysis examines a sample during the time period 2007 to 2010 and provides evidence that error announcement risk affects the demand for voluntary interim review services positively. In my opinion, the board of directors of a firm with higher levels of earnings management and, thus, a higher misstatement risk extends the auditor involvement to provide due diligence. As a contribution to the literature, and possible guidance for the European Parliament, the study provides evidence that demand for voluntary audit services is related to the enforcement system of the country.

In Chapter 4, we investigate a link between the phenomenon called 'balance sheet bloat', the recognition of future information content in audit fees and the charging of audit risks in fees. Our findings show a connection between earnings management and the probability of misstated/fraudulent disclosure of financial statements as well as the consequential enforcement releases for the German two-tier system. In the time-series models we observe a higher level of earnings management in the period of the misstated financial statements and the preceding year as compared to prior periods. Furthermore, evidence for an *'ex ante'* recognized price premium in the audit fees is provided, i.e. before the investigation by the enforcement body even starts. This offers insight on the connection between earnings management, audit risk recognition and the future information content in audit fees. It shows that audit fees contain information about the future. The detailed modeling of earnings management development within the firms and the systematic linkage to auditor reactions are major contributions and extensions to the literature. This study connects different empirical findings and streams of accounting research and builds up a confound framework for further investigations.

To sum up, the firm and corporate governance structure, the auditor and the enforcement system interact and cannot be investigated separately. The generalization of the findings is only possible in comparable legal backgrounds. Also, within one legal environment there can be complementary relations between internal and external controls as well as a substitution of both control mechanisms. This depends on the firm characteristics and the enforcement system.

References

ABBOTT, L. J., PARKER, S., PETERS, G. F. & RAGHUNANDAN, K. 2003. The Association between Audit Committee Characteristics and Audit Fees. *Auditing,* 22**,** 17-32.

ALVES, C. F. & TEIXEIRA DOS SANTOS, F. 2008. Do First and Third Quarter Unaudited Financial Reports Matter? The Portuguese Case. *European Accounting Review,* 17**,** 361-392.

ARTHAUD-DAY, M. L., CERTO, S. T., DALTON, C. M. D. & DALTON, D. R. 2006. A Changing of the Guard: Executive and Director Turnover Following Corporate Financial Restatements. *Academy of Management Journal,* 49**,** 1119-1136.

BANDYOPADHYAY, S. P., BORITZ, E. & LIU, G. 2007. Voluntary Assurance on Interim Financial Statements and Earnings Quality. *SSRN eLibrary.*

BARTON, J. & WAYMIRE, G. 2004. Investor protection under unregulated financial reporting. *Journal of Accounting and Economics,* 38**,** 65-116.

BARTOV, E., GUL, F. A. & TSUI, J. S. L. 2001. Discretionary-accruals models and audit qualifications. *Journal of Accounting & Economics,* 30**,** 421-452.

BAYLEY, L. & TAYLOR, S. L. 2007. Identifying Earnings Overstatements: A Practical Test. *SSRN eLibrary*

BEASLEY, M. S., CARCELLO, J. V., HERMANSON, D. R. & NEAL, T. L. 2009. The Audit Committee Oversight Process. *Contemporary Accounting Research,* 26**,** 65-122.

BEATTY, R. P. 1993. The Economic Determinants of Auditor Compensation in the Initial Public Offerings Market. *Journal of Accounting Research,* 31**,** 294-302.

BÉDARD, J. & COURTEAU, L. 2010. Value and Costs of Auditor s Assurance: Evidence from the Review of Quarterly Financial Statements. *SSRN eLibrary.*

BEDARD, J. C. & JOHNSTONE, K. M. 2004. Earnings Manipulation Risk, Corporate Governance Risk, and Auditors' Planning and Pricing Decisions. *Accounting Review,* 79**,** 277-304.

BENEISH, M. D. 1999. Incentives and Penalties Related to Earnings Overstatements that Violate GAAP. *Accounting Review,* 74**,** 425.

BERGER, A. 2010. The Development and Status of Enforcement in the European Union. *Accounting in Europe,* 7**,** 15-35.

BIGUS, J. & ZIMMERMANN, R.-C. 2008. Non-audit fees, market leaders and concentration in the German audit market: a descriptive analysis. *International Journal of Auditing,* 12**,** 159-179.

BIGUS, J. & ZIMMERMANN, R.-C. 2009. Quasirentenmodell und Honorare für Abschlussprüfungen in Deutschland – eine empirische Analyse. *Zeitschrift für Betriebswirtschaft (ZfB),* 79**,** 1283-1308.

BÖCKING, H.-J., GROS, M., WALLEK, C. & WORRET, D. 2012. Earnings Management and Enforcement of Accounting Standards – Evidence from Germany.

BÖCKING, H.-J. & KIEHNE, N. 2010. Zur Verantwortlichkeit des Aufsichtsrats im Rahmen der Zwischenberichterstattung. *Der Konzern,* 6/7**,** 296-308.

BORITZ, E. & LIU, G. 2006. Determinants of the Timeliness of Quarterly Reporting: Evidence from Canadian Firms. *SSRN eLibrary.*

BROWN, L. D. & PINELLO, A. S. 2007. To What Extent Does the Financial Reporting Process Curb Earnings Surprise Games? *Journal of Accounting Research,* 45**,** 947-981.

BROWN, N., POTT, C. & WÖMPENER, A. 2012. The effect of internal control and risk management regulation on earnings quality: Evidence from Germany. *SSRN eLibrary.*

CARAMANIS, C. & LENNOX, C. 2008. Audit effort and earnings management. *Journal of Accounting and Economics,* 45**,** 116-138.

CAREY, P., SIMNETT, R. & TANEWSKI, G. 2000. Voluntary Demand for Internal and External Auditing by Family Businesses. *Auditing,* 19**,** 37.

CHARLES, S. L., GLOVER, S. M. & SHARP, N. Y. 2010. The Association between Financial Reporting Risk and Audit Fees before and after the Historic Events Surrounding SOX. *Auditing,* 29**,** 15-39.

CHOW, C. W. 1982. The Demand for External Auditing: Size, Debt and Ownership Influences. *Accounting Review,* 57**,** 272.

CRASWELL, A. T., FRANCIS, J. R. & TAYLOR, S. L. 1995. Auditor brand name reputations and industry specializations. *Journal of Accounting & Economics,* 20**,** 297-322.

DAS, S., SHROFF, P. K. & ZHANG, H. 2009. Quarterly Earnings Patterns and Earnings Management. *Contemporary Accounting Research,* 26**,** 797-831.

DEANGELO, L. E. 1981. Auditor Independence, 'Low Balling', and Disclosure Regulation. *Journal of Accounting & Economics,* 3**,** 113-127.

DECHOW, P. & DICHEV, I. 2002. The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *Accounting Review,* 77**,** 35-59.

DECHOW, P. M., GE, W., LARSON, C. R. & SLOAN, R. G. 2011. Predicting Material Accounting Misstatements. *Contemporary Accounting Research,* 28**,** 17-82.

DECHOW, P. M., GE, W. & SCHRAND, C. 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics,* 50**,** 344-401.

DECHOW, P. M. & SLOAN, R. G. 1995. Detecting Earnings Management. *Accounting Review,* 70**,** 193-225.

DECHOW, P. M., SLOAN, R. G. & SWEENEY, A. P. 1996. Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC. *Contemporary Accounting Research,* 13**,** 1-36.

DEFOND, M., LIM, Y. L. & ZANG, Y. 2012. Client Conservatism and Auditor-Client Contracting. *Available: bc.edu/content/dam/files/schools/csom_sites/accounting/DeFond%20Paper.pdf.*

DESAI, H., HOGAN, C. E. & WILKINS, M. S. 2006. The Reputational Penalty for Aggressive Accounting: Earnings Restatements and Management Turnover. *Accounting Review,* 81**,** 83-112.

DHALIWAL, D. S., GLEASON, C. A. & MILLS, L. F. 2004. Last-Chance Earnings Management: Using the Tax Expense to Meet Analysts' Forecasts. *Contemporary Accounting Research,* 21**,** 431-459.

DIRECTIVE-2004/109/EC 2004. Directive on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market and amending Directive 2001/34/EC. *Official Journal of the European Union,* L 390/38.

DPR 2011. Annual activity report for the period from January 1 through December 31, 2010.

DPR 2012. Annual activity report for the period from January 1 through December 31, 2011.

DUECKER, H. 2009. The Effects of KonTraG on Earnings Quality in Germany. *SSRN eLibrary.*

DYE, R. A. 1990. Mandatory Versus Voluntary Disclosures: The Cases of Financial and Real Externalities. *Accounting Review,* 65**,** 1-24.

ERNSTBERGER, J., HITZ, J.-M. & STICH, M. 2012a. Why do firms produce erroneous IFRS financial statements? *SSRN eLibrary.*

ERNSTBERGER, J., STICH, M. & VOGLER, O. 2012b. Economic Consequences of Accounting Enforcement Reforms: The Case of Germany. *European Accounting Review,* 21**,** 217-251.

ERNSTBERGER, J. & VOGLER, O. 2008. Analyzing the German accounting triad — "Accounting Premium" for IAS/IFRS and U.S. GAAP vis-à-vis German GAAP? *International Journal of Accounting,* 43**,** 339-386.

ETTREDGE, M., SCHOLZ, S., SMITH, K. R. & SUN, L. 2010. How Do Restatements Begin? Evidence of Earnings Management Preceding Restated Financial Reports. *Journal of Business Finance & Accounting,* 37**,** 332-355.

ETTREDGE, M. & SIMON, D. 2000. Would switching to timely reviews delay quarterly and annual earnings releases? *Review of Quantitative Finance & Accounting,* 14**,** 111.

ETTREDGE, M., SIMON, D., SMITH, D. & STONE, M. 1994. Why do companies purchase timely quarterly reviews? *Journal of Accounting and Economics,* 18**,** 131-155.

ETTREDGE, M., SIMON, D., SMITH, D. & STONE, M. 2000. The Effect of the External Accountant's Review on the Timing of Adjustments to Quarterly Earnings. *Journal of Accounting Research,* 38**,** 195-207.

FARBER, D. B. 2005. Restoring Trust after Fraud: Does Corporate Governance Matter? *Accounting Review,* 80**,** 539-561.

FELDMANN, D. A., READ, W. J. & ABDOLMOHAMMADI, M. J. 2009. Financial Restatements, Audit Fees, and the Moderating Effect of CFO Turnover. *Auditing,* 28**,** 205-223.

FEROZ, E. H., KYUNGJOO, P. & PASTENA, V. S. 1991. The Financial and Market Effects of the SEC's Accounting and Auditing Enforcement Releases. *Journal of Accounting Research,* 29**,** 107-142.

FISHMAN, M. J. & HAGERTY, K. M. 1989. Disclosure Decisions by Firms and the Competition for Price Efficiency. *Journal of Finance,* 44**,** 633-646.

FRANCIS, J., KHURANA, I. & PEREIRA, R. 2003. The Role of Accounting and Auditing in Corporate Governance and the Development of Financial Markets around the World. *Asia-Pacific Journal of Accounting and Economics,* 10**,** 1-30.

FRANCIS, J., LAFOND, R., OLSSON, P. & SCHIPPER, K. 2005. The market pricing of accruals quality. *Journal of Accounting and Economics,* 39**,** 295-327.

FRANCIS, J. R. 1984. The Effect of Audit Firm Size on Audit Prices. *Journal of Accounting & Economics,* 6**,** 133-151.

FRANCIS, J. R. & STOKES, D. J. 1986. Audit Prices, Product Differentiation, and Scale Economies: Further Evidence from the Australian Market. *Journal of Accounting Research,* 24**,** 383-393.

GASSEN, J., FÜLBIER, R. U. & SELLHORN, T. 2006. International Differences in Conditional Conservatism - The Role of Unconditional Conservatism and Income Smoothing. *European Accounting Review,* 15**,** 527-564.

GASSEN, J. & SELLHORN, T. 2006. Applying IFRS in Germany: Determinants and Consequences. *SSRN eLibrary.*

GASSEN, J. & SKAIFE, H. 2009. Can Audit Reforms Affect the Information Role of Audits? Evidence from the German Market. *Contemporary Accounting Research,* 26**,** 867-898.

GCGC 2002. German Corporate Governanace Code. *available: corporate-governance-code.de/eng/kodex/index.html.* .

GOW, I., ORMAZABAL, G. & TAYLOR, D. 2010. Correcting for cross-sectional and time-series dependence in accounting research. *Accounting Review,* 85**,** 483-512.

GUAY, W. R., KOTHARI, S. P. & WATTS, R. L. 1996. A Market-Based Evaluation of Discretionary Accrual Models. *Journal of Accounting Research,* 34**,** 83-105.

HÄCKER, I. 2011. Die prüferische Durchsicht von Halbjahresfinanzberichten nach § 37 w WpHG – eine Analyse der Inanspruchnahme einer freiwilligen Prüfungsdienstleistung. *Die Wirtschaftsprüfung,* 6**,** 269-278.

HAENELT, T. 2009. Die Zwischenberichterstattung nach IFRS. *Josef Eul Verlag, Köln.*

HAW, I.-M., QI, D. & WU, W. 2008. The Economic Consequence of Voluntary Auditing. *Journal of Accounting, Auditing & Finance, 23***,** 63-93.

HAY, D. 2012. Further Evidence from Meta-Analysis of Audit Fee Research. *International Journal of Auditing***,** no-no.

HAY, D. C., KNECHEL, W. R. & WONG, N. 2006. Audit Fees: A Meta-analysis of the Effect of Supply and Demand Attributes. *Contemporary Accounting Research, 23***,** 141-191.

HENKEL, K., SCHMIDT, K. & OTT, D. 2008. Änderungen in der Zwischenberichterstattung kapitalmarktorientierter Unternehmen: Die TUG-Umsetzung in der Praxis (Teil 1). *Kapitalmarktorientierte Rechnungslegung (KoR),* 1**,** 36-46.

HITZ, J.-M., ERNSTBERGER, J. & STICH, M. 2012. Enforcement of Accounting Standards in Europe: Capital-Market-Based Evidence for the Two-Tier Mechanism in Germany. *European Accounting Review, 21***,** 253-281.

HOPE, O.-K. 2003. Disclosure Practices, Enforcement of Accounting Standards, and Analysts' Forecast Accuracy: An International Study. *Journal of Accounting Research, 41***,** 235-272.

HRIBAR, P. & JENKINS, N. T. 2004. The Effect of Accounting Restatements on Earnings Revisions and the Estimated Cost of Capital. *Review of Accounting Studies, 9***,** 337-356.

HUBER, P. J. 1967. The Behavior of Maximum Likelihood Estimates Under Nonstandard Conditions. Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability. 1**,** 221-223.

HUTTER, S. & KAULAMO, K. 2007. Transparenzrichtlinie-Umsetzungsgesetz: Änderungen der Regelpublizität und das neue Veröffentlichungsregime für Kapitalmarktinformationen. *NJW,* 9.

IDW 2012. IDW Position Paper on the Cooperation between the Supervisory Board and the Auditor (German Version); English Version available: idw.de. *IDW Fachnachrichten, 6***,** 339-350.

JACOB, J. & JORGENSEN, B. N. 2007. Earnings management and accounting income aggregation. *Journal of Accounting and Economics, 43***,** 369-390.

JENSEN, K. L. & PAYNE, J. L. 2003. Management Trade-Offs of Internal Control and External Auditor Expertise. *Auditing, 22***,** 99-119.

JENSEN, M. C. & MECKLING, W. H. 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics, 3***,** 305-360.

JETER, D. C. & SHIVAKUMAR, L. 1999. Cross-sectional estimation of abnormal accruals using quarterly and annual data: effectiveness in detecting event-specific earnings management. *Accounting & Business Research, 29***,** 299-319.

JOHNSTONE, K. M. 2000. Client-Acceptance Decisions: Simultaneous Effects of Client Business Risk, Audit Risk, Auditor Business Risk, and Risk Adaptation. *Auditing, 19***,** 1-25.

JONES, J. J. 1991. Earnings Management During Import Relief Investigations. *Journal of Accounting Research, 29***,** 193-228.

JONES, K. L., KRISHNAN, G. V. & MELENDREZ, K. D. 2008. Do Models of Discretionary Accruals Detect Actual Cases of Fraudulent and Restated Earnings? An Empirical Analysis. *Contemporary Accounting Research, 25***,** 499-531.

KANODIA, C. & MUKHERJI, A. 1994. Audit Pricing, Lowballing and Auditor Turnovers: A Dynamic Analysis. *Accounting Review, 69***,** 593-615.

KENNEDY, P. E. 1981. Estimation with correctly interpreted dummy variables in semi-logarithmic equations. *American Economic Review, 71***,** 801.

KERSTEIN, J. & RAI, A. 2007. Intra-year shifts in the earnings distribution and their implications for earnings management. *Journal of Accounting and Economics, 44***,** 399-419.

KÖHLER, A. 2005. Audit Committees in Germany - Theoretical Reasoning and Empirical Evidence. *Schmalenbach Business Review (SBR), 57***,** 229 - 252.

KÖHLER, A. G., MARTEN, K.-U., QUICK, R. & RUHNKE, K. 2008. Audit Regulation in Germany: Improvements Driven by Internationalization. *In: Quick, R., Turley, S. & Willekens, M. (Eds.): Auditing, Trust and Governance. London/New York***,** 111-143.

KÖHLER, A. G., MARTEN, K.-U., RATZINGER, N. & WAGNER, M. 2010. Prüfungshonorare in Deutschland – Determinanten und Implikationen. *Zeitschrift für Betriebswirtschaft (ZfB), 80***,** 5-29.

KOTHARI, S. P., LEONE, A. J. & WASLEY, C. E. 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics, 39***,** 163-197.

KRISHNAN, G. & VISVANATHAN, G. 2009. Do Auditors Price Audit Committee's Expertise? The Case of Accounting versus Nonaccounting Financial Experts. *Journal of Accounting, Auditing & Finance, 24***,** 115-144.

KRISHNAN, J. & ZHANG, Y. 2005. Auditor Litigation Risk and Corporate Disclosure of Quarterly Review Report. *Auditing, 24***,** 115-138.

LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A. & VISHNY, R. 2000. Investor protection and corporate governance. *Journal of Financial Economics, 58***,** 3-27.

LA PORTA, R., LOPEZ-DE-SILANES, F., SHLEIFER, A. & VISHNY, R. W. 1997. Legal Determinants of External Finance. *Journal of Finance, 52***,** 1131-1150.

LAWRENCE, A., MINUTTI-MEZA, M. & PING, Z. 2011. Can Big 4 versus Non-Big 4 Differences in Audit-Quality Proxies Be Attributed to Client Characteristics? *Accounting Review, 86***,** 259-286.

LENNOX, C. S. & PITTMAN, J. A. 2011. Voluntary Audits versus Mandatory Audits. *Accounting Review,* 86**,** 1655-1678.

LENZ, H. 1996. Die Struktur des Marktes für Abschlussprüfungsmandate bei deutschen Aktiengesellschaften. *Die Wirtschaftsprüfung,* 49**,** 269-279; 313-318.

LENZ, H., MÖLLER, M. & HÖHN, B. 2006. Offenlegung der Honorare für Abschlussprüferleistungen im Geschäftsjahr 2005 bei DAX-Unternehmen. *Betriebs-Berater,* 61**,** 1787-1793.

LENZ, H. & OSTROWSKI, M. 1999. Der Markt für Abschlussprüfungen bei börsennotierten Aktiengesellschaften. *Die Betriebswirtschaft,* 53**,** 397-411.

LEUZ, C., NANDA, D. & WYSOCKI, P. D. 2003. Earnings management and investor protection: an international comparison. *Journal of Financial Economics,* 69**,** 505-527.

LEUZ, C. & VERRECCHIA, R. E. 2000. The Economic Consequences of Increased Disclosure. *Journal of Accounting Research,* 38**,** 91-124.

LEUZ, C. & WYSOCKI, P. D. 2008. Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research. *SSRN eLibrary*.

LEVITT, A. 1998. The Importance of High Quality Accounting Standards. *Accounting Horizons,* 12**,** 79-82.

LIN, J. W. & HWANG, M. I. 2010. Audit Quality, Corporate Governance, and Earnings Management: A Meta-Analysis. *International Journal of Auditing,* 14**,** 57-77.

LIPSEY, R. & LANCASTER, K. 1956. The General Theory of Second Best. *The Review of Economic Studies,* 24**,** 11-32.

MANGENA, M. & TAURINGANA, V. 2008. Audit Committees and Voluntary External Auditor Involvement in UK Interim Reporting. *International Journal of Auditing,* 12**,** 45-63.

MANRY, D., TIRAS, S. L. & WHEATLEY, C. M. 2003. The Influence of Interim Auditor Reviews on the Association of Returns with Earnings. *Accounting Review,* 78**,** 251.

MARTEN, K.-U., QUICK, R. & RUHNKE, K. 2003. Die Wirtschaftsprüfung. 2. Edition, Stuttgart.

MCCONNELL, J. J. & SERVAES, H. 1990. Additional Evidence on Equity Ownership and Corporate Value. *Journal of Financial Economics,* 27**,** 595-612.

MCNICHOLS, M. F. 2002. DISCUSSION OF The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *Accounting Review,* 77**,** 61.

MERINO, B. D., MAYPER, A. G. & SRIRAM, R. S. 1994. Voluntary Audits in New York Markets in 1927: A Case Study. *Journal of Business Finance & Accounting,* 21**,** 619-642.

MERKL, G. 2011. Einflussfaktoren der Prüfungshonorare – Anmerkungen zu den Beiträgen „Quasirentenmodell und Honorare für Abschlussprüfungen in Deutschland – eine empirische Analyse" und „Prüfungshonorare in Deutschland – Determinanten und Implikationen". *Zeitschrift für Betriebswirtschaft,* 81**,** 1003-1019.

MÖLLER, M. & HÖLLBACHER, A. 2009. Die deutsche Börsen und Indexlandschaft und der Markt für Abschlussprüfungsleistungen. *Die Betriebswirtschaft,* 69**,** 647-678.

MORCK, R., SHLEIFER, A. V. & VISHNY, R. 1988. Management Ownership and Market Valuation: An Empirical Analysis. *Journal of Financial Economics,* 20**,** 293-315.

PALMROSE, Z.-V. 1986. Audit Fees and Auditor Size: Further Evidence. *Journal of Accounting Research,* 24**,** 97-110.

PALMROSE, Z.-V., RICHARDSON, V. J. & SCHOLZ, S. 2004. Determinants of market reactions to restatement announcements. *Journal of Accounting & Economics,* 37**,** 59.

PEASNELL, K. V., POPE, P. F. & YOUNG, S. 2001. The characteristics of firms subject to adverse rulings by the Financial Reporting Review Panel. *Accounting & Business Research (Wolters Kluwer UK),* 31**,** 291-311.

PETERSEN, K. & ZWIRNER, C. 2008. Angabepflichten der Honoraraufwendungen für den Abschlussprüfer – Theoretische und empirische Betrachtung der Offenlegungserfordernisse zur Stärkung der Prüferunabhängigkeit. *Die Wirtschaftsprüfung,* 61**,** 279-290.

PETERSEN, M. A. 2009. Estimating Standard Errors in Financial Panel Data Set: Comparing Approaches. *The Review of Financial Studies,* 22**,** 435-480.

QUICK, R. & SATTLER, M. 2011. Das Erfordernis der Umsatzunabhängigkeit und die Konzentration auf dem deutschen Markt für Abschlussprüferleistungen. *Zeitschrift für Betriebswirtschaft,* 81**,** 61-98.

QUICK, R. & WIEMANN, D. 2011. Zum Einfluss der Mandatsdauer des Abschlussprüfers auf die Prüfungsqualität. *Zeitschrift für Betriebswirtschaft,* 81**,** 915-943.

RAGHUNANDAN, K. & RAMA, D. V. 2006. SOX Section 404 Material Weakness Disclosures and Audit Fees. *Auditing,* 25**,** 99-114.

REGULATION(EC)NO.1606/2002 Regulation on the application of international accounting standards. *Official Journal of the European Communities,* L 243/1.

ROGERS, W. H. 1993. Regression standard errors in clustered samples. *Stata Technical Bulletin,* 13**,** 19-23.

SÁNCHEZ-BALLESTA, J. P. & GARCÍA-MECA, E. 2007. Ownership Structure, Discretionary Accruals and the Informativeness of Earnings. *Corporate Governance: An International Review,* 15**,** 677-691.

SCHIPPER, K. 2007. Required Disclosures in Financial Reports. *Accounting Review,* 82**,** 301-326.

SIMUNIC, D. A. 1980. The Pricing of Audit Services: Theory and Evidence. *Journal of Accounting Research,* 18**,** 161-190.

SIMUNIC, D. A. & STEIN, M. T. 1996. The Impact of Litigation Risk on Audit Pricing: A Review of the Economics and the Evidence. *Auditing,* 15**,** 119-134.

SODERSTROM, N. S. & SUN, K. J. 2007. IFRS Adoption and Accounting Quality: A Review. *European Accounting Review,* 16**,** 675-702.

SRINIVASAN, S. 2005. Consequences of Financial Reporting Failure for Outside Directors: Evidence from Accounting Restatements and Audit Committee Members. *Journal of Accounting Research,* 43**,** 291-334.

STANLEY, J. D. 2011. Is the Audit Fee Disclosure a Leading Indicator of Clients' Business Risk? *Auditing,* 30**,** 157-179.

SUTTON, M. H. 1997. Financial Reporting in U.S. Capital Markets: International Dimensions. *Accounting Horizons,* 11**,** 96-102.

VERRECCHIA, R. E. 2001. Essays on disclosure. *Journal of Accounting and Economics,* 32**,** 97-180.

VITOLS, S. 2005. Changes in Germany's Bank-Based Financial System: implications for corporate governance. *Corporate Governance: An International Review,* 13**,** 386-396.

VON KEITZ, I. & WENK, M. O. 2010. Eine quantitative und qualitative Analyse der von der DPR festgestellten Fehler bei der IFRS-Anwendung. *Der Betrieb,* 10**,** 513-521.

WAGNER, J. 2007. Die Bestellung des Abschlussprüfers für die prüferische Durchsicht - Fragen bei der aktuellen Vorbereitung der Hauptversammlung. *Betriebs-Berater***,** 454-458.

WARNING, S. 2011. Eigentümerstruktur und Aufsichtsratsverhalten - Shareholder Concentration and Supervisory Board Behavior. *Eine Analyse anhand des Deutschen Corporate Governance Kodex; An Analysis Based on the German Corporate Governance Code.*

WAßMER, M. P. 2011. Defizite und Neuerungen im Bilanzstrafrecht des HGB. *Zeitschrift für Internationale Strafrechtsdogmatik (ZIS),* 7**,** 648-659.

WATTS, R. L. & ZIMMERMAN, J. L. 1990. Positive Accounting Theory: A Ten Year Perspective. *Accounting Review,* 65**,** 131-156.

WHITE, H. 1980. A heteroscedasticity-consistent covariance matrix estimator and a direct test for heteroscedasticity. *Econometrica,* 48**,** 817-838.

WILD, A. 2010. Fee cutting and fee premium of German auditors. *Die Betriebswirtschaft,* 70**,** 513-527.

YANG, J. S. & KRISHNAN, J. 2005. Audit Committees and Quarterly Earnings Management. *International Journal of Auditing,* 9**,** 201-219.

YEO, G. H. H., TAN, P., HO, K. W. & CHEN, S. S. 2002. Corporate Ownership Structure and the Informativeness of Earnings. *Journal of Business, Finance and Accounting,* 29**,** 1023-1046.

ZAMAN, M., HUDAIB, M. & HANIFFA, R. 2011. Corporate Governance Quality, Audit Fees and Non-Audit Services Fees. *Journal of Business Finance & Accounting,* 38**,** 165-197.

ZEFF, S. A. 2012. The Evolution of the IASC into the IASB, and the Challenges it Faces. *Accounting Review,* 87**,** 807-837.