NHH

WP 2017/5
ISSN: 2464-4005
www.nhh.no

WORKING PAPER

Investors´ Perceptions of Non-Audit Services and Their Type in Germany: The Financial Crisis as a Turning Point

Aasmund Eilifsen, Reiner Quick, Florian Schmidt and Steffen Umlauf

Department of Accounting, Auditing and Law
Institutt for regnskap, revisjon og rettsvitenskap

NORWEGIAN SCHOOL OF ECONOMICS

Investors' Perceptions of Non-Audit Services and Their Type in Germany: The Financial Crisis as a Turning Point

by

Aasmund Eilifsen
NHH Norwegian School of Economics

Reiner Quick
Darmstadt University of Technology and University of Southern Denmark

Florian Schmidt
Darmstadt University of Technology

Steffen Umlauf
Darmstadt University of Technology

September 2017

Address correspondence to Aasmund Eilifsen, Norwegian School of Economics, Hellev. 30, 5045 Bergen, Norway, or by e-mail to aasmund.eilifsen@nhh.no. The authors would like to thank Joe Carcello, Jürgen Ernstberger, Al Ghosh, David Hay, Kjell Henry Knivsflå, Lasse Niemi; and the participants at the 2014 Nordic Accounting Conference, Copenhagen Business School, Denmark; the 2015 8th EARNet Symposium, University of Lausanne, Switzerland; and the 2015 77th Annual Meeting of the German Academic Association for Business Research, Vienna University of Economics and Business, Austria, for comments on previous versions of this article.

Investors' Perceptions of Non-Audit Services and Their Type in Germany: The Financial Crisis as a Turning Point

Abstract

As a result of mistrust in the auditor profession, legislators and regulators continue to impose restrictions to the joint provision of audit and non-audit services (NAS) to protect investors' interests. Investors may perceive, however, NAS differently than legislators and it is an open question whether a ban on NAS always aligns with investors' interests. Little evidence exists on investors' perceptions of auditor-provided NAS in the Continental European regulatory environment, including Germany. The unique features of the German legal and regulatory environment raises questions of its ability to comfort investors that auditors resist client-induced biases in financial reporting. To empirically investigate and test this, we use earnings response coefficients (ERC) to measure investors' perceptions of earnings quality and examine the associations between ERC and NAS fees. Surprisingly, we do not find significant associations between ERC and NAS fees for our entire sample period 2005-2015. For further examination, we split the sample before and after the financial crisis in 2008-2009. The findings indicate that in the pre-financial crisis period 2005-2007 investors perceive large NAS fees negatively, and this concern also extends to the components of the NAS fees. In contrast, in the post-financial period 2010-2015 investors perceive large NAS fees positively and favorable perceptions of tax services are a driver of this result. We discuss the findings in light of the regulatory initiatives in the aftermath of the financial crisis, and the recent EU supranational prohibitions of NAS and the German application of these.

Keywords: Auditor independence; Continental Europe; Investor perceptions; Financial crisis; Non-audit services; Regulation

1. Introduction

Research, regulators, and the accounting profession recognize that a ‘‘perception’’ that an auditor’s independence is impaired by high levels of non-audit services (NAS) is potentially as serious as the direct evidence of factual impairment (DeAngelo, 1981a; Francis & Ke, 2006). As a result of mistrust in the auditor profession legislators and regulators continue to impose restrictions to the joint provision of audit and NAS to protect investors’ interests (Deutscher Bundestag, 2016; EU, 2014; EC, 2011). Investors may perceive, however, NAS differently than legislators and it is an open question whether a ban on NAS always aligns with investors’ interests.

This paper uses earnings response coefficients (ERC) to measure investors’ perceptions of earnings quality and to examine the associations between ERC and NAS fees. Prior research evidence in Anglo-American environments on capital market participants’ perceptions of NAS is mixed but favors the conclusion that investors perceive large auditor-provided NAS negatively or are indifferent (Francis, 2006). Limited inconclusive evidence exists on investor perceptions of the components of NAS (Mishra et al., 2005)[1], and some studies report tax services to be more positively perceived (for example, Krishnan et al., 2013).

This study is one of a few to assess the economic consequences of NAS provision, including NAS components, from an investor perspective and applied to an institutional setting the previous literature has not yet dealt with. Compared to the Anglo-American setting the unique features of the German regulatory environment seem not well suited to comfort investors’ concern for the provision of NAS. Surprisingly, for our sample period 2005-2015 we are unable to conclude that large provisions of NAS and any of its components concern investors. This leads us to examine whether the financial crisis in 2008-2009 may have affected investors’ perceptions of auditor-provided NAS. Our results indicate that in the pre-financial crisis period 2005-2007 investors perceive large NAS fees negatively, and this concern also extends to the components of the NAS fees. The financial crisis period 2008-2009 shows similar results except for insignificance for the tax services fee component. In contrast, in the post-financial crisis period 2010-2015 investors perceive large NAS fees positively and favorable perceptions of tax services drive this result.

Our findings for the pre-financial crisis period give support to the presumption that large NAS weakened German investors’ trust in the financial statements. Thus, we have a case for stricter regulations of the provision of NAS. The findings for the years following the crisis

[1] Based on their findings, Mishra et al. (2005) argue that it will be useful to replicate some prior studies (that use a single measure of non-audit fees) using the newer, more finely partitioned fee data.

indicate, however, that large NAS fees result in a higher perceived financial reporting quality by investors. This suggests that investors' concerns for auditor independence no longer dominate perceived benefits from auditor-provided NAS such as reduced transaction costs and knowledge spillover benefits from NAS that improve the quality or efficiency of the audit.[2]

Turmoil in the financial markets during the financial crisis in 2008-2009 initiated heavy criticism of the auditor profession (e.g., EC 2009; Arnold 2009; Sikka 2009). Did the investors' perceive that the crisis in itself disciplined auditors to strengthen audit quality so we have a case of a 'market solution' with no need for regulators' intervention? This is debatable. At the time regulators such as the European Commission (EU) strongly signaled future tightening of auditor regulations, including more restrictions on the provision of NAS to audit clients (EC 2010; EC 2011). Investors may therefore have assessed that auditors and relevant corporate parties such as audit committees and the supervisory boards took the signals seriously before any new regulation came into force, including that the parties become more alert that the provision of NAS may inflict with auditor independence.

In 2014 EU approved new regulations of the auditing sector and introduced supranational prohibitions of NAS for public interest entities (PIEs), a so-called "black list" of prohibited NAS (EU, 2014).[3] In addition, a cap on the provision of NAS was introduced. In the application of the new EU regulations, the German Parliament decided in 2016 to use the EU option to allow valuation and certain tax services on the "black list", and not to use the option to deviate from the EU upper limit cap of 70 percent of NAS fees relative to the audit fee.[4] Our findings give arguments in support of the stricter regulation of auditor-provided NAS in Germany and give support to the German decision to use the option to allow certain tax services on the EU "black list".

The next section discusses specific features of the German setting that may be relevant for German investors' perceptions of auditor-provided NAS, and NAS regulation in Germany and the EU in our sample period. The following section reviews relevant research literature and

---

[2] Research has primarily focused on knowledge spillover benefits to the audit. A study by Ciconte III, Knechel, and Mayberry (2014) indicates that benefits may also flow to the client purchasing NAS services.

[3] See Appendix 2 for the EU "black list".

[4] The EU regulation for PIEs binds Member States and is therefore directly applicable without the need for any national implementing legislation. There are, however, a number of options available in the EU regulation where Member States have a choice, including opting to allow valuation and certain tax services on the "black list", and opting to establish stricter rules than 70 % for setting the fee cap. Therefore, Member States may use additional implementing legislation to deal with the options available. On May 10, 2016, the German parliament (Bundestag) passed a law on the execution of the EU regulation for PIEs (Abschlussprüfungsreformgesetz) that included derogation from the prohibition of valuation and certain tax services on the "black list". The new law came into force on June16, 2016 (Deutscher Bundestag, 2016).

develops the hypotheses. The fourth section presents the sample, tests, including a description of our methodology, and results. The last section gives a summary and conclusions.

2. Specifics of the German Setting

2.1. Litigation Risk and Oversight Setting

German investors' perception of auditor-provided NAS may be influenced by certain specifics of the German regulatory environment, particularly auditors' litigation risk, public oversight of auditors, and the regulation of the provision of NAS, including the disclosure of auditor fees. These German specifics are presented in the following, and serve together with prior research to motivate the hypotheses.

The literature indicates that the investor protection environment and auditors' litigation exposure affect financial reporting and audit quality (e.g., Ball et al., 2000; Leuz et al., 2003; Ball & Shivakumar, 2008; Francis et al., 2003; Choi & Wong, 2007; Djankov et al., 2007; Francis & Wang, 2008; Gul et al., 2013). Investor protection is considered being weak in Germany (La Porta et al., 1998; La Porta et al., 2000; Djankov et al., 2007; Gul et al., 2013). For example, Gul et al. (2013) derive scores of investor protection based on a factor analysis on four investor protection indexes (anti-director rights index, index of disclosure requirement, index of liability standard, and index of public enforcement). They report a score of -2.071 for Germany, while the U.S. and the U.K. score 0.253 and 0.939, respectively. Only two of the 30 countries in the sample have a lower investor protection score than Germany.

Litigation exposure is viewed as perhaps the most effective mechanisms of discipline on auditors. The German Commercial Code caps auditors' liability for negligent misconduct towards audit clients; set at four million € for listed clients. The scope for third parties to pursue actions against auditors is very limited; the German Civil Code requires that an intentional violation is established. The intent requirement severely restricts investors from taking actions in tort against auditors. Given the nature of an audit, it is extremely difficult to prove that the statutory auditor acted intentionally. In addition to the Civil Code, case law may hold auditors liable to third parties for negligent misconduct.[5] Judicial decisions to compensate for auditors' negligence based on previous legal cases are, however, very rare (relating to a very restricted set of circumstances and only to other cases with similar issues or facts) and normally apply a similar liability cap as previously mentioned (Gietzmann & Quick, 1998; Schmidt & Feldmüller, 2014). Thus, the German Civil Code and case law hold

[5] Case law refers to "contract with a protective effect for third parties".

auditors liable only to a very limited degree for negligent misconduct. We believe, therefore, that the low risk of auditor litigation in Germany may limit investors' comfort that auditors resist client-induced biases in financial reporting. It is possible, however, that even in a low-litigation risk environment investors' concerns may be compensated for by investors' reliance on auditors' incentives to avoid reputation losses (DeFond et al., 2002; Hope & Langli, 2010). Other compensating mechanisms such as effective public oversight of auditors may also discipline auditors' behavior and bolster investors' trust in auditor independence and the fairness of audited financial statements.

A professional body, the German Chamber of Auditors, monitors auditors' compliance with their professional duties, including auditor independence and objectivity.[6] The Chamber organizes a system of external quality controls, which are peer reviews, of audit practices that perform statutory audits and is responsible for disciplinary observance. The Chamber sanctions auditors' misconduct, but disciplinary actions are normally not made public and the identity of the disciplined party is never to be disclosed. Moreover, severe sanctions such as suspension or exclusion from the profession are rarely applied (Wirtschaftsprüferkammer, 2014). Until recently, a public body, the Auditor Oversight Commission (AOC), supervised the activities of the Chamber, including the quality control process and disciplinary observance. Members of the AOC held only part-time positions. From 2007 the AOC became responsible for inspections of PIE audits and audit firms with PIE clients; annually for audit firms with more than 25 PIE clients and at least every third year for other firms. The Chamber's inspectors performed these inspections on the AOC's behalf, and none inspections of audit firms or audits of PIEs were performed by AOC's inspectors.[7] The modest role of the public oversight of auditors in Germany in our sample period, in addition to the lack of transparency in disciplinary cases against auditors, calls into question the effectiveness of the German system of oversight of auditors in addressing investors' concerns about auditors' incentives to control client-induced biases in financial reporting.

Although the investor protection environment, auditors' litigation exposure, and public oversight of auditors are commonly believed to be fundamental mechanisms for disciplining auditors, the potential perceived adverse effects of auditor-provided NAS may also be controlled by restricting the provision of NAS. Adequate disclosure of auditor fees may be crucial in the formation of investors' perceptions (DeAngelo, 1981a).

---

[6] Although the Chamber is constituted by law and is supervised by the public body Auditor Oversight Commission (AOC)/Auditor Oversight Board, the Chamber is operated and governed by the profession.

[7] In June 2016 a new public body, the Auditor Oversight Board (AOB), took over the AOC's inspection responsibilities and the AOB employs its own inspectors.

2.2. German NAS Regulations

The German Commercial Code regulates the provision of NAS by the statutory auditor to audit clients and requires auditor fee disclosure in the notes to the financial statements. From June 2016, additional restrictions on NAS are imposed on German PIEs as a result of the new EU regulatory decision and these are discussed in the next section. The Commercial Code reflects a mixture of principle-based and rule-based approaches, and many legal terms in the Code are open for interpretation. See Appendix 1 for prohibited specific NAS in the Code and in our sample period.[8]

The requirement in the Code to disclose auditor fee information in the notes of the financial statements of corporations with securities admitted to trading on a regulated market took effect from the fiscal year 2005.[9] Four NAS fee categories or components shall be disclosed:

a) Fees for the statutory audit
b) Fees for assurance services other than the statutory audit
c) Fees for tax services
d) Fees for other consultancy services

In the paper we refer to the services beyond the statutory audit as assurance NAS, tax NAS, and other NAS. The Code does not require finer specification within NAS categories, and no official guidance exists for which service to include in a category. Sometimes companies, however, voluntarily disclose in the notes the types of services within a given category.

Assurance NAS typically include voluntary audits of consolidated entities and statutory audit related services such as review of interim financial reporting and assurance of pro-forma financial information. Inspection of fee disclosure notes to the financial statements of our sampled companies reveals that assurance NAS may occasionally include services such as due diligence, assurance related to bond issues, assurance of internal control systems, assurance of implementation of IT systems, issue of comfort letters, and confirmation of debt covenants.

---

[8] The Code refers to legal terms such as "beyond audit activities", "in a responsible position", "autonomous", "material effect", "minor relevance", and "material activity." These terms are not well-defined, and this, together with the partly principle-based approach in the Code, makes the constitution of a legal NAS open to interpretation.

[9] Financial statements of listed companies have to be published at the latest four months after the balance sheet date in the electronic Federal Gazette. Since 2009, all large corporations are obliged to disclose auditor fees in the notes to the financial statements.

The financial statement notes also show that commonly demanded tax services include tax declaration support, review of tax assessment notes, tax planning, tax advice regarding transactions, transfer pricing issues, tax advice to German employees with temporary appointments abroad, tax due diligence, tax advice regarding a restructuring, or support with regard to tax audits.

Our category, "other NAS", includes all NAS other than assurance NAS and tax NAS. This residual category may include a variety of NAS (for example, training and consulting with regard to IT systems, expert opinions on managerial problems, financial due diligence, M&A advice, and bond issue advice) (Sattler, 2011, p. 118; IDW, 2012, p. 776). The other NAS fee information is normally reported as the aggregate without further disclosure of its components.

Based on the discussion above, we argue that the flexibility inherent in the NAS regulations, including the disclosure requirements of NAS fees, may not be very effective in comforting investors of potential negative effects of NAS on audit quality.

2.3. EU NAS Regulations for PIEs and the German Application

The EU 8th Directive requires that all statutory auditors and audit firms are subject to principles of professional ethics, addressing their public-interest function, their integrity and objectivity, their professional competence, and the concept of due care (EU, 2006). The Directive refers to the European Commission's Recommendation on Statutory Auditors' Independence in the EU: A Set of Fundamental Principles (EC, 2002). The Recommendation, like the international Code of Ethics for Professional Accountants, adheres to the conceptual framework approach to auditor independence and serves as a benchmark of good practice.

In contrast, the new EU regulations on NAS to PIEs are rule-based and ban specific NAS, known as the "black list". Appendix 2 summarizes the "EU black" list for PIEs (EU, 2014). Germany decided to use the Member State option to deviate from the "black list" and to allow the provision of certain tax services (preparation of tax forms, identification of public subsidies and tax incentives, and provision of tax advice) and the provision of valuation services whenever they are immaterial or have no direct effect. EU also introduced a mandatory cap for NAS, i.e., total NAS fees shall not exceed 70 percent of the average of the audit fees paid in the last three consecutive financial years. Germany did not use the option to deviate from the upper limit cap of 70 percent.

The new EU and German regulations for PIEs are more restrictive than those of the Commercial Code. The "black list" has a wider scope and prohibits additional NAS, such as

payroll services, designing and implementing internal control or risk management procedures related to the preparation and/or control of financial information, and certain human resources services. Further, the "black list" also specifies the prohibited NAS in more detail, leaving less room for judgment. Finally, a fee cap for PIEs on NAS did not exist previously in Germany.

3. Prior Research and Hypotheses

The literature on the joint provision of audit and NAS discusses opposing effects on clients' earnings quality from the provision of NAS. On the one hand, NAS increase the economic bond between the auditor and client and may expose the auditor to self-review risk in the audit; both of these threaten auditor objectivity (DeAngelo, 1981b; Simunic, 1984; Arruñada, 1999; Ruddock et al., 2006; Zhang & Emanuel, 2008; Quick & Warming-Rasmussen, 2015). On the other hand, provision of NAS may improve the quality of financial statement audits through knowledge spillover from performing NAS (Simunic, 1984; Arruñada, 1999; Knechel, Sharma, and Sharma 2012).

To document investors' perception of NAS, capital market studies typically examine the effect of NAS on the relationship between stock returns and earnings.[10] For example, a negative association between the earning response coefficient (ERC) and NAS indicates that investors perceive that purchasing additional NAS weakens the quality of earnings. Several prior studies find such a negative association (Frankel et al., 2002; Krishnan et al., 2005; Francis & Ke, 2006; Gul et al., 2006; and Lim & Tan, 2008), but other studies only find that ERC and NAS are negatively associated under restrictive conditions (Higgs & Skantz, 2006; Eilifsen & Knivsflå, 2013) or find no such association (Ashbaugh et al., 2003; Ghosh et al., 2009). The mixed results indicate that investors may either be concerned or indifferent to high levels of NAS.

To test our hypotheses we use earnings-response regressions based on the annual returns-earnings relation (Gul et al., 2006; Ghosh et al., 2009;[11] Lai & Krishnan, 2009; Fan et al., 2010; Holland & Lane, 2012; Eilifsen & Knivsflå, 2013; Campa & Donnelly, 2016).

This is the first capital market study in the German environment of the effect of NAS and its components on investors' perceptions of earnings quality. Prior surveys and experimental research indicate that the provision of NAS may impair the appearance of auditor

[10] This and other empirical archival research generally measures the *net* effect of auditor-provided NAS from threats to auditor objectivity and knowledge spillover benefits.

[11] See Ghosh et al. (2009, 372) for a discussion of research design issues and arguments for the use of a one-year measurement period (long-window).

independence (Dykxhoorn & Sinning, 1982; Quick & Warming-Rasmussen, 2009; Meuwissen & Quick, 2009; Quick & Warming-Rasmussen, 2015). Findings from the limited research in the German environment of the potential adverse effect of NAS on the actual outcome of the audit process are mixed. Ratzinger-Sakel (2013) did not find that the level of NAS fees is related to the likelihood of issuing a going concern report. Three other German studies (Quick & Sattler, 2011; Krauss & Zülch, 2013; Lopatta et al., 2015) indicate a positive relationship between relatively high levels of NAS and abnormal accruals. Krauss and Zülch (2013) also report that assurance NAS primarily drive the association.

Low investor protection, including auditors' low litigation risk and modest public oversight of auditors, may enhance investor concern about the joint provision of audit and NAS. This, together with the prior research findings, leads us to expect that investors perceive NAS negatively in Germany.

Hypothesis 1: Investor perceptions are negatively associated with the magnitude of auditor-provided NAS.

In addition to the NAS fee total, the notes to the financial statements disclose the fee of the three components: assurance NAS, tax NAS, and other NAS (residual). Occasionally individual NAS types within a component are disclosed in the notes, but not their fees. Investors therefore base their perceptions on this incomplete disclosure of information about the specific NAS.

Typical assurance NAS such as review of interim financial reporting and assurance of pro-forma financial information are closely related to the audit, with potential for knowledge spillover benefits and modest exposure to the auditor self-review threat. In contrast, some other services reported as assurance NAS (for example, due diligence and assurance of implementation of IT systems and internal control systems) may raise investors' concerns regarding auditor objectivity in the audit.

While the provision of assurance NAS can improve audit efficiency, incumbent auditors may also impair their independence as a result of offering assurance NAS to their clients. The net effect of the provision of assurance NAS on earnings quality depends on which effect dominates, and it is an open question of how strongly the weak German investor protection environment affects investors' independence concerns regarding assurance NAS. Based on the discussion above, we state a non-directional hypothesis for assurance NAS:

Hypothesis 2(a): Investor perceptions are associated with the magnitude of auditor-provided assurance NAS.

Research suggests that tax services have significant potential for providing knowledge spillover benefits and therefore enhance financial reporting quality or decrease audit effort. For example, Krishnan and Visvanathan (2011) posit that the joint provision of audit and tax services is likely to detect contentious issues that have implications for financial reporting on a timely basis, enabling the auditor to take steps immediately to constrain future earnings management attempts by the managers.

Several studies support the conjecture that provision of tax NAS enhances financial reporting quality (using proxies such as restatements, abnormal accruals, loss avoidance, meeting of analyst forecasts, and the quality of the estimated tax reserves) consistent with the knowledge spillover benefits argument (Kinney et al., 2004; Robinson, 2008; Choi et al., 2009; Gleason & Mills, 2011; Krishnan & Visvanathan, 2011; Seetharaman et al., 2011). In a capital market study, Krishnan et al. (2013) find that the value-relevance of earnings increases in the ratio of tax fees over total fees paid to the auditor.[12] Huang et al. (2007) find only weak evidence that distorted financial statements (using abnormal accruals as proxy) are less likely when tax fee ratios are high, while Mishra et al. (2005) find a positive association between the tax fee ratio and the proportion of votes against auditor ratification, indicating that investors' concerns regarding auditor independence dominate any knowledge spillover benefits.[13]

While there is evidence from the Anglo-American environment that the provision of tax NAS can improve audit efficiency, it is unclear in the German environment, with its low investor protection and the closer alignment between financial and tax accounting, how strongly tax NAS raise investors' concerns of a lack of independence. Based on the discussion above, we state a non-directional hypothesis for tax NAS:

Hypothesis 2(b). Investor perceptions are associated with the magnitude of auditor-provided tax NAS.

It follows from the discussion and the three hypotheses above that investors' concerns are expected to prevail for the residual, other NAS.

Hypothesis 2(c). Investor perceptions are negatively associated with the magnitude of auditor-provided other NAS.

[12] In line with the arguments in the research literature, regulators have suggested that investors would view audit-related tax services more favorably than other NAS (SEC, 2002, 2003).

[13] Other studies examining the effect of the provision of tax NAS on planned audit hours or other audit planning decisions do not support the existence of audit production efficiencies from knowledge spillover (Davis et al., 1993; O'Keefe et al., 1994; Johnstone & Bedard, 2001).

The global financial and economic crisis in 2008-2009 raised the question about the role and value of the audit by regulators and academics (e.g., Arnold, 2009; Sikka, 2009; EC, 2010; EC, 2011, EU, 2014; Geiger et al., 2014). From the standpoint of market participants, had auditors failed to play the role of market "watchdogs" and "protectors" of earnings quality? The crisis can have forced investors to recognize the weakness in earnings quality that existed all along and provoke their skepticism of earnings numbers (e.g., Kwon et al., 2017). Investors may also have recognized, however, that the crisis could serve as a disciplining mechanism to mitigate weakness in earnings quality (Francis et al., 2013). Such recognition may be particularly potent when legislators and regulators clearly signal that stricter regulations will be adopted (Eilifsen & Knivsflå, 2013). Thus, it is conceivable that the financial crisis enhanced the efforts of supervisory boards, audit committees, and auditors to ensure auditor independence that in turn may have eased investors' concerns from auditor-provided NAS.

In the direct aftermath of the financial crisis the EU announced strong intentions to reform the audit sector. With the aim to re-establishing investor confidence in financial information the European Commission issued in 2010 a Green Paper drawing lessons from the crisis for audit of companies (EC, 2010). The Green Paper raised fundamental questions about the suitability and adequacy of the current legislative framework and signaled possible radical reinforcing of the prohibitions of NAS by audit firms (Quick, 2012).[14] In 2011 the Commission proposed specific requirements regarding audits of public-interest entities (PIEs) (EC, 2011). The proposals included a general prohibition of the provision of NAS to PIEs clients, i.e., a ban on services beyond the audit and related financial audit services. Finally, in 2014 EU voted for extensive prohibitions (the "black list") of NAS to PIEs for Members States which application came into force in Germany in 2016 (EU, 2014; Deutscher Bundestag, 2016).

Against this backdrop, we also address the following research question:

Research Question: Did the financial crisis affect investor perceptions of auditor-provided NAS and its components?

[14] Green Paper 'Audit Policy: Lessons from the Crisis' (EC, 2010, 12): "The Commission would like to examine reinforcing the prohibition of non-audit services by audit firms. This could potentially result in the creation of "pure audit firms" akin to inspection units. Since auditors provide an independent opinion on the financial health of companies, ideally they should not have any business interest in the company being audited."

4. Sample, Tests, and Results

4.1. Sample Selection

The sample consists of companies at the Deutsche Börse CDAX index in the 11-year period 2005-2015. The CDAX index includes all stocks on the Frankfurt Stock Exchange that are listed in the General Standard or Prime Standard market segments. Stock market and accounting data were collected from Worldscope and Datastream. The audit data were hand-collected data from annual reports. As reported in Panel A in Table 1, the initial number of company-year observations were 5,632. We deleted observations from financial-sector companies (927), from incomplete data sets (1,173), and for other reasons (809).[15] Our final sample consists of 2,723 company-year observations for 379 individual companies for the 11-year period.

Panel B of Table 1 defines the variables involved in testing the hypotheses.

- INSERT TABLE 1 ABOUT HERE -

4.2. Descriptive Statistics

Table 2, Panel A presents descriptive statistics for the entire investigation period (2005-2015). The average stock return (*RETURN*) is 14.3 percent and the average return on equity (*EARN*) is about 1.9 percent. The average non-audit fee ratio (*NAF*) is 27.9 percent, ranging from 11.1 percent to 42.3 percent from the first to the third quartile. The means of the three categories of non-audit fees ratios are quite close, with the highest average of 10.5 percent for other non-audit services (*NAF3*). The average fee ratio for other assurance services (*NAF1*) and tax services (*NAF2*) is the same and 8.7 percent.[16] Debt capital is on average the most important source of capital (*LEV*, 62.3 percent), and the average market-to-book ratio (*MBV*) is 196.4 percent. The percentage of companies reporting a loss (*LOSS*) is 24, and 65.8 percent of the companies are audited by one of the four big audit firms (*BIG4*).

Table 2, Panel B presents correlations between selected variables. The stock market return (*RETURN*) is significantly positively correlated with the level of earnings (*EARN*) and significantly negatively correlated with other assurance services (*NAF1*) and the existence of a loss (*LOSS*). Following from the variable definitions, *EARN* is significantly negatively

[15] Observations were excluded because of non-disclosure of NAS-fees (234), non-IFRS reporting (178), fiscal year ending other than 31 December (386), and joint audits (11).

[16] The restrictive legal ban on providing tax NAS to PIE audit clients in Germany may limit tax NAS, compared to Anglo-American environments such as the U.S. (Huang et al., 2007 report a tax-fee ratio of 15 percent).

correlated with *LOSS*. In addition, there are significant, positive correlations between *EARN* and *NAF3*, and *LOSS*. Significant, positive correlations are observed between the NAS fee ratio (*NAF*) and its three component ratios (*NAF1*, *NAF2*, and *NAF3*). *LOSS* correlates significantly positively with other assurance services (*NAF1*) and significantly negatively with tax services (*NAF2*). This may reflect decreased focus on tax issues and the greater demand for other assurance services for loss-making companies. Finally, there are significant, positive relations between *BIG4* audits and *NAF*, *NAF1*, and *NAF3*.

- INSERT TABLE 2 ABOUT HERE -

4.3. Test of Hypotheses and Research Question

To test the hypotheses, we use the ERC from earnings-response regression models as a proxy for investor perceptions of earnings quality (Frankel et al., 2002; Krishnan et al., 2005; Francis & Ke, 2006; Gul et al., 2006; Lim & Tan, 2008; Ghosh et al., 2009; Eilifsen & Knivsflå, 2013; Krishnan et al., 2013).

In the basic model, ERC is the estimated effect of reported earnings on stock returns (Easton & Harris, 1991).

$$RETURN = \beta_0 + \beta_1 \cdot EARN + \varepsilon. \quad (1)$$

$$ERC = \partial RETURN / \partial EARN = \beta_1. \quad (2)$$

Equation (1) can be expanded to allow for variables, other than *EARN*, that may affect *RETURN*, and interactions between *EARN* and these other variables; *NAF* is one such potential variable. Variables other than *EARN* and *NAF* variables that may affect *RETURN* are defined as X_i where i = 1-m.

$$RETURN = \beta_0 + \beta_1 \cdot EARN + \beta_2 \cdot NAF + \beta_3 \cdot EARN \cdot NAF + \sum_{i=1}^{m} (\beta_{3+i} \cdot X_i) + \sum_{i=1}^{m} (\beta_{m+3+i} \cdot EARN \cdot X_i) + \varepsilon. \quad (3)$$

Our primary interest when testing Hypothesis 1 is the interaction between *EARN* and *NAF*, β_3 (i.e., the effect of NAF on ERC, cf. (2)).[17]

Similarly, when testing Hypotheses 2(a), 2(b), and 2(c), the primary interest is the interactions between *EARN* and the fee ratio components, *NAF1*, *NAF2*, and *NAF3* (β_5, β_6, and β_7, respectively).

$$RETURN = \beta_0 + \beta_1 \cdot EARN + \beta_2 \cdot NAF1 + \beta_3 \cdot NAF2 + \beta_4 \cdot NAF3 + \beta_5 \cdot EARN \cdot NAF1 + \beta_6 \cdot EARN \cdot NAF2 + \beta_7 \cdot EARN \cdot NAF3 + \sum_{i=1}^{m}(\beta_{7+i} \cdot X_i) + \sum_{i=1}^{m}(\beta_{m+7+i} \cdot EARN \cdot X_i) + \varepsilon. \quad (4)$$

Following previous research, we include in the main tests, the following control variables (X_i): *LEV* and *STDRET* to control for firm risk (Collins & Kothari, 1989), *MBV* as a proxy for growth prospects (Lipe et al., 1998), *LOSS* as a control variable for earnings persistence (Hayn, 1995), and *SIZE* to control for size effects (see Francis & Ke, 2006). Since large audit firms may moderate investors' concerns of independence from providing NAS (Francis, 2004; Gul et al., 2006; Eilifsen & Knivsflå, 2013), we include *BIG4*. Year dummies (*YEAR*) are used to control for time series variations. Finally, to capture potential industry-specific factors that are not completely covered by the other firm-specific controls, industry dummies (*INDUSTRY*) are included in the regressions.[18]

Based on (3), we use the following regression to test Hypothesis 1:

$$RETURN = \beta_0 + \beta_1 \cdot EARN + \beta_2 \cdot NAF + \beta_3 \cdot EARN \cdot NAF + \beta_4 \cdot LEV + \beta_5 \cdot STDRET + \beta_6 \cdot MBV + \beta_7 \cdot LOSS + \beta_8 \cdot SIZE + \beta_9 \cdot BIG4 + \beta_{10} \cdot EARN \cdot LEV + \beta_{11} \cdot EARN \cdot STDRET + \beta_{12} \cdot EARN \cdot MBV + \beta_{13} \cdot EARN \cdot LOSS + \beta_{14} \cdot EARN \cdot SIZE + \beta_{15} \cdot EARN \cdot BIG4 + YEAR + INDUSTRY + \varepsilon. \quad (5)$$

Based on (4), we use the following regression to test Hypotheses 2(a), 2(b), and 2(c):

[17] Other studies that use interactions to investigate how NAS affect ERC include among others Krishnan et al. (2005), Gul et al. (2006), Ghosh et al. (2009), and Eilifsen & Knivsflå (2013). The inclusion of interaction terms in the regression models implies multicollinearity by construction. Nevertheless, when collinear variables are significant, as in our case, collinearity in itself does not present a problem, despite corrective variance inflation (Wooldridge, 2009, 95-99). Inspection of Table 2, Panel B of correlation coefficients between variables included in interaction terms (below 0.8) and variance inflation indicators (below 10 for all variables, except for EARN), do not indicate serious multicollinearity problems (Field, 2014, 325). For both regression models (5) and (6), the Durbin-Watson test statistics are close to 2.0 (1.973 and 1.977) and do not not indicate presence of autocorrelation. Visual inspection of the plotted residuals does not reveal a heteroskedasticity problem. Further visual inspections reveal a normal distribution of residuals.

[18] The results are qualitatively similar as those reported when winsorizing variables at one percent at each tail.

$$RETURN = \beta_0 + \beta_1 \cdot EARN + \beta_2 \cdot NAF1 + \beta_3 \cdot NAF2 + \beta_4 \cdot NAF3 + \beta_5 \cdot EARN \cdot NAF1 + \beta_6 \cdot EARN \cdot NAF2 + \beta_7 \cdot EARN \cdot NAF3 + \beta_8 \cdot LEV + \beta_9 \cdot STDRET + \beta_{10} \cdot MBV + \beta_{11} \cdot LOSS + \beta_{12} \cdot SIZE + \beta_{13} \cdot BIG4 + \beta_{14} \cdot EARN \cdot LEV + \beta_{15} \cdot EARN \cdot STDRET + \beta_{16} \cdot EARN \cdot MBV + \beta_{17} \cdot EARN \cdot LOSS + \beta_{18} \cdot EARN \cdot SIZE + \beta_{19} \cdot EARN \cdot BIG4 + YEAR + INDUSTRY + \varepsilon. \quad (6)$$

Table 3 reports the regression results for (5) and (6) in two separate main columns. As expected, reported income (*EARN*) is positively and significantly associated with stock market return (*RETURN*). The coefficient of our test variable for hypothesis 1 (*EARN · NAF*) is negative but not significant. Hypothesis 1 is not supported. Contrary to our expectation, we cannot conclude that investor perceptions are negatively associated with the magnitude of auditor-provided NAS for our entire sample period.

- INSERT TABLE 3 ABOUT HERE -

The coefficient of our test variables for the components of *NAS, EARN · NAF1, EARN · NAF2,* and *EARN · NAF3*, are negative, positive and negative, respectively, but none are significant. The components of NAS do not associate with the magnitude of auditor provided NAS and hypotheses 2(a), 2(b), and 2(c) are not supported. Surprisingly, all our test variables turned out as insignificant and we do not find support for any of the four hypotheses for the entire sample period 2005-2015.[19]

Next, we turn to our research question; Did the financial crisis affect investor perceptions of auditor-provided NAS and its components? We partition our sample in the pre-financial crisis period 2005-2007, the financial crisis period 2008-2009, and the post-financial crisis period 2010-2015.

- INSERT TABLE 4 ABOUT HERE -

Table 4, Panel A presents the descriptive statistics for the three sub-sample periods while Panel B presents the correlation matrix between selected variables for each sub-sample period.

The average stock return (*RETURN*) ranges from 10.9 (crisis period) to 16.8 percent with the highest mean value for the pre-crisis period and a slightly lower mean for the post-crisis

[19] To investigate the robustness of the results, we perform additional tests by changing the specification of our empirical model (additional control variables) and using alternative non-audit fee definitions. The insignificant results for the test variables are upheld.

period (14.2 percent). The average return on equity (*EARN*) is almost equal for pre- and post-crisis period (3.8 percent and 3.5 percent, respectively), but turns negative for the crisis period (-5.4 percent). The average non-audit fee ratio (*NAF*) decreases for each period, from 31.5 percent for the pre-crisis period, to 27.8 percent for the crisis period, and to 26.1 percent for the post-crisis period. A similar pattern is observed for the three categories of non-audit fees, (*NAF1*, 9.2, 9.0, 8.2 percent; *NAF2*, 10.1, 8.9, 8.0 percent; and *NAF3*, 12.1, 9.9, 9.9 percent). Total liabilities to total asset ratio (*LEV*) ranges from 53.2 (pre-crisis period) to 69.5 percent (post-crisis period). The pre-crisis period shows the highest mean value for the market-to-book ratio (*MBV*) (290.2 percent) and with the lowest for post-crisis period (159.1 percent). For the crisis period, the percentage of companies reporting a loss (*LOSS*) is 32.1 percent, while around 22 percent for the pre- and post-crisis period. The Big 4 firms become more dominant for each period (60.9, 65.3, and 68.6 percent).

Table 4 presents the Pearson correlation matrix for the dependent and selected independent variables regarding the sub-samples. The stock market return (*RETURN*) is significantly positively correlated with *EARN* for all three periods, and for the pre- and post-crisis period negatively correlated with *NAF1* (marginally significant for the post-crisis period) and *LOSS*. Following from the variable definitions, *EARN* is negatively correlated with *LOSS* throughout all three periods. Moreover, for the years before and after the crisis, a positive correlation is observed between *EARN* and *NAF3*. For all periods, *NAF* is significantly positively associated with *NAF1*, *NAF2*, and *NAF3*. For the pre-crisis period *LOSS* correlates significantly positively with *NAF1* and *NAF3*, and significantly negatively with *NAF2*. For the crisis period *LOSS* correlates weakly negatively with *NAF2*. For the post-crisis period *LOSS* correlates negatively with *NAF* (weakly significant), *NAF2* and *NAF3* (weakly significant). Finally, *BIG4* is positively associated with *NAF* (weakly significant) for the crisis period and post-crisis period, *NAF1* for all three periods, and *NAF3* for the post-crisis period, respectively, and negatively correlated with *NAF2* (weakly significant) for the pre-crisis period.

Table 5, Panel A reports the regression results for (5), where our test variable is *EARN* · *NAF* for each sub-period; the pre-crisis period 2005- 2007, the crisis-period 2008-2009, and the post-crisis period 2010-2015.

- INSERT TABLE 5 ABOUT HERE -

As expected, reported income (*EARN*) is positively and significantly associated with stock market return (*RETURN*) for all three periods. Before and during the crisis, the coefficient of our test variable *EARN · NAF* is negative (-1.179; -0.450, respectively) and significant (p-value = 0.003; 0.045, respectively), i.e., large NAS negatively associate with ERC. This is line with the prediction of hypothesis 1. The result indicates that investors perceive large NAS adversely. Investors' concerns for auditor independence seems to dominate any perceived knowledge spillover benefits to the audit from NAS. For the period following the crisis, however, the coefficient of *EARN · NAF* is significantly positive (0.259 with p-value = 0.015). This suggests positive perceptions of NAS by investors. The finding may reflect that the crisis and reform process starting immediately in the aftermath of the crisis changed supervisory boards', audit committees', and auditors' awareness of potential negative effects on audit quality of auditor-provided NAS. In turn this may have eased investors' concerns from auditor-provided NAS, and to the extent that their perceived knowledge spillover benefits now dominate their independence concerns.[20]

Table 5, Panel B reports the regression results for (6), where our test variables are *EARN · NAF1, EARN · NAF2,* and *EARN · NAF3,* for each sub-period. Before the crisis, the coefficients of our test variables *EARN · NAF1*, *EARN · NAF2*, and *EARN · NAF3* are all negative (-1.218, -2.501, and -1.230, respectively) and clearly significant (p-value = 0.029, 0.004, and 0.009, respectively).[21] The results show that investors perceive each individual audit fee category negatively in the pre-crisis period. For the crisis period 2008-2009, the coefficients of our test variables *EARN · NAF1* and *EARN · NAF3* are again significantly negative (-1.050 with p-value = 0.028; -0.670 with p-value = 0.012, respectively). We do not observe a significant association for the variable *EARN · NAF2* in the crisis period.[22] For the post-crisis period, only the coefficient of the test variable *EARN · NAF2* is significant (p-value = 0.007). The coefficient has a positive sign (0.486), i.e., the provision of tax NAS increases investors' confidence in reported earnings.[23]

To summarize, the results for the sub-periods indicate that before and during the crisis investors perceive that large NAS weaken earnings quality. Investors' concerns of biased

[20] For the pre-crisis period, the control variable the market to book value of equity (*MBV*) associates with ERC (0.026 with p-value = 0.085). During the crisis, there is a positive effect on ERC of *STDRET* (4.513 with p-value = 0.000) and a negative effect of *MBV* (-0.057 with p-value = 0.022) and *LOSS* (-1.030 with p-value = 0.000). For the post-crisis period, a negative effect on ERC is found for *LOSS* (-0.120 with p-value = 0.065), *SIZE* (-0.051 with p-value = 0.002), and *BIG4* (-0.146 with p-value = 0.025).

[21] This is in line with the predictions of hypotheses 2(a), 2(b) (investor perceptions are associated with the magnitude of auditor-provided assurance NAS, *NAF1*, and tax NAS, *NAF2*), and 2(c) (investor perceptions are negatively associated with the magnitude of auditor-provided other NAS, *NAF3*).

[22] This in line with hypotheses 2(a) and 2(c) but not hypothesis 2(b).

[23] This in line with hypothesis 2(b) but not hypotheses 2(a) and 2(b).

financial reporting dominate possible knowledge spillover benefits from providing large NAS. Also, the results for the years 2005-2009 indicate that this is the case for the three NAS components individually. In contrast, the findings for the post-crisis period suggest that investors' perceived improved earnings quality with larger NAS fees. This is consistent with perceived knowledge spillover benefits from NAS dominating investors' independence concerns. Tax NAS are the driver of this finding. The results show that after the financial crisis investors' perceptions of auditor-provided NAS substantially changed.

4.4. Robustness and Additional Tests

We perform robustness tests for the sub-periods by changing the specification of our empirical model (additional control variables) and using alternative non-audit fee definitions. In addition, we simulate the effect of the new German (EU) cap on NAS fees for our first two sub-samples to evaluate its effectiveness if applied in the sub-sample periods.

The first robustness test includes two additional control variables proposed in the literature: *AUDITOR CHANGE* (indicator variable that equals 1 if company j changed audit firms for the fiscal year t, and 0 otherwise) and *INDUSTRY LEADER* (indicator variable that equals 1 if the auditor of company j had the highest audit fees in the related industry for the fiscal year t, and 0 otherwise). Table 6 reports the results.

- INSERT TABLE 6 ABOUT HERE -

For the years preceding the crisis, the regression coefficient for the interaction *EARN · NAF* is negative (-1.139) and strongly significant (p-value = 0.005). The coefficients for the components other assurance services fees (*NAF1*), tax services fees (*NAF2*) and other services fees (*NAF3*) are also negative (-1.119, -2.494, and -1.217, respectively) and clearly significant (p-value = 0.047, 0.004, and 0.010, respectively). For the crisis period, the coefficient for the test variable *EARN · NAF* is again negative (-0.385), but just missed significance (p-value = 0.107). For other assurance services fees (*NAF1*) and other services fees (*NAF3*), the impact is again negative (-1.102 and -0.913, respectively) and clearly significant (p-value = 0.038 and 0.004, respectively). As in the main test, the coefficient for tax services fees (*NAF2*) is positive but insignificant (0.286 with p-value = 0.396). After the crisis, the regressions coefficient for the interaction *EARN · NAF* is positive (0.263) and significant (0.013). Tax services fees (*NAF3*) exert a significantly positive effect (0.483 with p-value = 0.008), while the results do not show a significant relationship for the two other fee components, *NAF1* and

NAF3 (-0.069 with p-value = 0.811 and 0.241 with p-value = 0.210, respectively). Hence, the results for the alternatively specified regressions are basically the same as those in the main tests.

The second set of robustness tests applies alternative non-audit fees variable definitions to the ratio between non-audit fee and total auditor fee. Table 7 reports the results for NAF scaled by the market value of equity (Panel A), for un-scaled NAF (Panel B), and for the natural logarithm of NAF (Panel C).

- INSERT TABLE 7 ABOUT HERE -

Again, *EARN · NAF* is significantly negative in the pre-crisis period for the three alternative non-audit fees variable definitions. The negative sign of the interaction coefficients extent into the crisis period but the coefficients are insignificant or weakly significant (for scaled NAF, Panel A). In the post-crisis period *EARN · NAF* is positive but insignificant (for un-scaled NAF and natural logarithm of NAF) or significant negative (for scaled NAF). The latter contrasts the findings in the main test. Additional results for alternative definitions of non-audit fees for NAS categories (not tabulated) show associations quite similar to the main tests but in some cases with less significance, mainly related to tax services fees. The results from the robustness tests of alternative audit fees variable definitions confirm the previous results from the basic models except that in the post-crisis period the results become less clear.

To simulate the effect of the new German (EU) 70 percent cap of NAS fees relative to the audit fee for our two sub-samples before and during the crisis, we exclude all company-year observations when *NAF* is above 0.4112.[24] For the pre-crisis period, this reduces the sample from 769 to 518 company-year observations. The coefficient for the test variable *EARN · NAF* is still negative (-2.940) and strongly significant (p-value = 0.002). Additional calculations indicate that the test variable becomes insignificant when *NAF* does not exceed 0.36, which implies a cap of about 56 percent (*NAF* = -0.560 with p-value = 0.684). Thus, for this sub-sample the "optimal" cap may be lower than the 70 percent. For the crisis period, the sample is reduced from 504 to 377 company-year observations. The coefficient for the test variable *EARN · NAF* is again negative (-0.126) but not significant (p-value = 0.770). Thus, for the crisis period the results do not indicate that the cap is too moderate.

[24] The truncation is comparable to excluding company-year observations when the total NAS fee is more than 70 percent of the annual audit fee.

5. Summary and Concluding Remarks

This study is motivated by the recent EU and German regulatory decisions to prohibit auditor-provided NAS to protect investors' interests, prior inconclusive evidence on capital market participants' perceptions of NAS and its components, and the lack of studies of investors' perceptions of NAS in the Continental European regulatory environment.

Contrary to our expectation, we do not find significant associations between investors' perceptions and NAS fees for the sample period 2005-2015. This leads us to examine whether the financial crisis in 2008-2009 may have affected investors' perceptions of auditor-provided NAS. Our findings indicate that in the pre-crisis period 2005-2007 investors perceive large NAS fees negatively, and this concern also extends to the components of the NAS fees. The crisis period 2008-2009 shows similar results except for insignificance for the tax services fee component. In contrast, in the post-crisis period 2010-2015 investors perceive large NAS fees positively and favorable perceptions of tax services are a driver of this result. We therefore conclude that after the financial crisis investors' perceptions of auditor-provided NAS significantly changed.

A possible explanation of the findings in the post-crisis period may be that investors could have recognized that the crisis would serve as a disciplining mechanism to mitigate weakness in earnings quality. Such recognition may be particularly potent when regulators clearly signal that stricter regulations of the provision of NAS will be adopted. Thus, it is conceivable that the financial crisis enhanced the efforts of supervisory boards, audit committees, and auditors to ensure auditor independence that in turn may have eased investors' concerns from auditor-provided NAS.

The findings for the pre-crisis period and into the crisis period give reason to question the ability of the then prevailing German legal and regulatory environment to comfort investor perceptions that auditors sufficiently resist client-induced biases in financial reporting. Thus, there are arguments in support of a stricter regulation of auditor-provided NAS. Such regulation materialized in Germany in 2016 when the EU regulation and German legislators' application of the EU supranational prohibitions of NAS came into force. Immediate after the financial crisis, however, the European Commission announced strong intentions to reform the audit sector and to impose a radical ban on the provision of NAS. This may have significantly altered investors' perceptions of auditors' effort to protect earnings, long before new regulations came into place.

The study is subject to limitations. The sample is based on German data for the period 2005-2015, an environment with some distinctive regulatory features. Examinations on how NAS affect earnings quality in other, currently not studied, regulatory environments (e.g., the more recent EU Member States in Eastern Europe), as well as use of an international sample to exploit variations across countries (e.g.,, whether a common EU cap on NAS might not be optimal or meaningful for all EU national auditing markets[25]), would be interesting. Although the German decision to use the option to allow certain tax services on the EU "black list" finds support in our findings (tax services fees positively associates with ERC in the post-crisis period), it is currently unclear how well the German application of the EU supranational prohibitions of NAS matches with investors' interests. Thus, an extension of our study for the years to come, would be interesting for future research. Furthermore, we cannot exclude that the reporting entities changed their approach to classifying and reporting audit and NAS fees over time which in turn may have an impact on investors' perceptions. At last, the current study focuses on equity investors' perceptions, investors as one group, and listed companies. Future research could use alternative market perception measures such as cost of capital, and explore how other financial statements users such as creditors (Dykxhoorn & Sinning, 1982), including financial institutions, perceive auditor-provided NAS for PIEs and non-PIEs.

[25] Germany and most other EU Member States decided not to deviate from the EU upper limited cap while Poland and Portugal opted to lower the cap below 70 percent

Appendix 1. German prohibition of the provision of NAS for all statutory audits in our sample period

a) Participation in bookkeeping and the preparation of the financial statements
b) Participation in internal auditing in a responsible position
c) Provision of management and financial services
d) Provision of autonomous actuarial or valuation services with a material effect on the financial statements

Two additional services are prohibited for the audit of PIE clients:

e) Provision of legal or tax services that goes beyond illustration of alternatives and that directly and materially affects the presentation of a true and fair view of the financial position of the entity
f) Participation in the development and implementation of financial accounting systems if this activity is material

Appendix 2. EU prohibition of the provision of NAS to PIEs (the "black list")

(a) Provision of tax services relating to:

(i) Preparation of tax forms
(ii) Payroll tax
(iii) Customs duties
(iv) Identification of public subsidies and tax incentives unless support from the statutory auditor or audit firm in respect of such services is required by law
(v) Support regarding tax inspections by tax authorities unless support from the statutory auditor or audit firm in respect of such inspections is required by law
(vi) Calculation of direct and indirect tax and deferred tax
(vii) Provision of tax advice

(b) Services that involve playing any part in the management or decision-making of the audited entity

(c) Bookkeeping and preparing accounting records and financial statements

(d) Payroll services

(e) Designing and implementing internal control or risk management procedures related to the preparation and/or control of financial information or designing and implementing financial information technology systems

(f) Valuation services, including valuations performed in connection with actuarial services or litigation support services

(g) Legal services, with respect to:

(i) Provision of general counsel

(ii) Negotiating on behalf of the audited entity and

(iii) Acting in an advocacy role in the resolution of litigation

(h) Services related to the audited entity's internal audit function

(i) Services linked to the financing, capital structure and allocation, and investment strategy of the audited entity, except providing assurance services in relation to the financial statements, such as the issuing of comfort letters in connection with prospectuses issued by the audited entity

(j) Promoting, dealing in, or underwriting shares in the audited entity

(k) Human resources services, with respect to

(i) Management in a position to exert significant influence over the preparation of the accounting records or financial statements which are the subject of the statutory audit, where such services involve: searching for or seeking out candidates for such position; or undertaking reference checks of candidates for such positions

(ii) Structuring the organization design and

(iii) Cost control.

References

Arnold; P. J. (2009). Global Financial Crisis: The Challenge to Accounting Research. *Accounting, Organizations and Society 34*, 803–809.

Arruñada, B. (1999). *The Economics of Audit Quality: Private Incentives and the Regulation of Audit and Nonaudit Services*. Kluwer Academic Publishers.

Ashbaugh, H., LaFond, M., & Mayhew, B. (2003). Do nonaudit services compromise auditor independence? Further evidence. *The Accounting Review, 78(3),* 611–639.

Ball, R., Kothari S., & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics, 29(1),* 1–52.

Ball, R., & Shivakumar, L. (2008). Earnings quality at initial public offerings. *Journal of Accounting and Economics 45,* 324–349.

Balsam, S., Krishnan, J., & Yang, J. S. (2003). Auditor industry specialization and earnings quality. *Auditing: A Journal of Practice & Theory, 22(2),* 71–97.

Campa, D., & Donnelly, R. (2016). Non-audit services provided to audit clients, independence of mind and independence in appearance: latest evidence from large UK listed companies. *Accounting and Business Research, 46(4),* 422–449.

Choi, J.-H. & T. J. Wong. (2007). Auditors' governance functions and legal environment: An international investigation. *Contemporary Accounting Research, 24,* 13–46.

Choi, W.-W., Lee, H. Y., & Jun, B. W. (2009). The provision of tax services by incumbent auditors and earnings management: Evidence from Korea. *Journal of International Financial Management and Accounting, 20(1),* 79–103.

Ciconte III, W. A., Knechel, W. R., & Mayberry, M. A. (2014). Non-Audit Services and Improvements in Clients' Operating Performance and Risk Management. Working paper University of Florida.

Collins, D. W., & Kothari, S. P. (1989). An analysis of intertemporal and cross-sectional determinants of earnings response coefficients. *Journal of Accounting and Economics, 11(2),* 143–181.

Davis, L. R., Ricchiute, D. N., & Trumpeter, G. (1993). Audit effort, audit fee, and the provision of nonaudit services to audit clients. *The Accounting Review, 68(1),* 135–150.

DeAngelo, L. E. (1981a). Auditor size and audit quality. *Journal of Accounting and Economics, 3,* 183–199.

DeAngelo, L. E. (1981b). Auditor independence, 'low balling', and disclosure regulation. *Journal of Accounting and Economics, 3,* 113–127.

Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics, 50(2–3),* 344–401.

DeFond, M., Raghunandan, K., & Subramanyam, K. R. (2002). Do nonaudit service fees impair auditor independence? Evidence from going concern audit opinions. *Journal of Accounting Research, 40(4),* 1247–1274.

Deutscher Bundestag (2016). Gesetz zur Umsetzung der prüfungsbezogenen Regelungen der Richtlinie 2014/56/EU sowie zur Ausführung der entsprechenden Vorgaben der Verordnung (EU) Nr. 537/2014 im Hinblick auf die Abschlussprüfung bei Unternehmen von öffentlichem Interesse (Abschlussprüfungsreformgesetz – AReG). *Bundesgesetzblatt*, 1142–1157.

Djankov, S., McLiesh, C., & Shleifer, A. (2007). Private credit in 129 countries. *Journal of Financial Economics, 12(2),* 77–99.

Dykxhoorn, H.J., & Sinning, K.E. (1982). Perceptions of Auditor Independence: Its Perceived Effect on the Loan and Investment Decisions of German Financial Statement Users. *Accounting, Organizations and Society, 7,* 337–347.

Easton, P. D., & Harris, T. S. (1991). Earnings as an explanatory variable for returns. *Journal of Accounting Research, 29,* 19–36.

Eilifsen, Aa., & Knivsflå, K. H. (2013). How increased regulatory oversight of non-audit services affects investors' perceptions of earnings quality. *Auditing: A Journal of Practice & Theory, 32(1),* 85–112.

European Commission (EC). (2002). Recommendation on the statutory auditors' independence in the EU: A set of fundamental principles. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002H0590&from=HR.

European Commission (EC). 2010. Green Paper 'Audit Policy: Lessons from the Crisis'. Available from: http://ec.europa.eu/internal_market/consultations/docs/2010/audit/green_paper_audit_en.pdf.

European Commission (EC). (2011). Proposal for a regulation of the European Parliament and of the Council on specific requirements regarding statutory audit of public-interest entities: http://ec.europa.eu/finance/auditing/reform/index_en.htm.

European Union (EU). (2006). EU 8th Directive on statutory audits of annual accounts and consolidated accounts. Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:157:0087:0107:EN:PDF.

European Union (EU). (2014). Regulation (EU) No 537/2014 of the European Parliament and of the Council of 16 April 2014 on specific requirements regarding statutory audit of public-interest entities and repealing Commission Decision 2005/909/EC. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2014:158:FULL#page=79.

Fan, H.-S., Chen, C.-L., & Jung, T. (2010). Non-audit services and the value relevance of accounting: a case study. *International Journal of Revenue Management, 4(1),* 92–117.

Field, A. (2014). *Discovering Statistics Using IBM SPSS Statistics*. (4th ed.). Los Angeles et al.: SAGE.

Fortin, S., & Pittman, J. A. (2008). The Impact of Auditor-Related Tax Services on Corporate Debt Pricing. *Journal of the American Taxation Association, 30(2),* 79-106.

Francis, B., Hasan, I. & Wu, Q. (2013). The Benefits of Conservative Accounting to Shareholders: Evidence from the Financial Crisis. *Accounting Horizons, 27(2),* 319-346.

Francis, J. R. (2004). What do we know about audit quality? *The British Accounting Review, 36(4),* 345–368.

Francis, J. R. (2006). Are auditors compromised by nonaudit services? Assessing the evidence. *Contemporary Accounting Research, 23(3),* 747–760.

Francis, J. R., 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,* 139–165.

Francis, J. R., & B. Ke, B. (2006). Disclosure of fees paid to auditors and the market valuation of earnings surprises. *Review of Accounting Studies, 11(4),* 495–523.

Francis, J. R., & Wang, D. (2008). The joint effect of investor protection and Big 4 audits on earnings quality around the world. *Contemporary Accounting Research, 25(1),* 157–191.

Frankel, R. M., Johnson, M. F., & Nelson, K. K. (2002). Auditor independence and earnings quality. *The Accounting Review, 77 (Supplement),* 71–105.

Geiger, M. A., Raghunandan, K., & Riccardi, W. (2014). The Global Financial Crisis: U.S. Bankruptcies and Going-Concern Audit Opinions, *Accounting Horizons, 28(1),* 59–75.

Ghosh, A., Kallapur, S., & Moon, D. (2009). Audit and non-audit fees and capital market perceptions of audit independence. *Journal of Accounting and Public Policy, 28(5),* 369–385.

Gietzmann, M. B., & Quick, R. (1998). Capping auditor liability: The German experience. *Accounting, Organizations and Society, 23(1),* 81–103.

Gleason, C. A., & Mills, L. F. (2011). Do auditor-provided tax services improve the estimate of tax reserves? *Contemporary Accounting Research, 28(5),* 1484–1509.

Gul, F. A., Tsui, J., & Dhaliwal, D. S. (2006). Non-audit service, audit quality and the value relevance of earnings. *Accounting and Finance, 46(5),* 797–817.

Gul, F. A., Zhou, G., & Zhu, X. (2013). Investor protection, firm informational problems, Big N auditors, and cost of debt around the world. *Auditing: A Journal of Practice & Theory, 32(3),* 1–30.

Hayn, C. (1995). The information content of losses. *Journal of Accounting and Economics, 20(2),* 125–153.

Higgs, J. L., & Skantz, T. R. (2006). Audit and nonaudit fees and the market's reaction to earnings announcements. *Auditing: A Journal of Practice & Theory, 25(1),* 1–26.

Holland, K., & Lane, J. (2012). Perceived auditor independence and audit firm fees. *Accounting and Business Research*, *42(2)*, 115–141.

Hope, O.-K., & Langli, J. C. (2010). Auditor independence in a private firm and low litigation risk setting. *The Accounting Review*, *85(2)*, 573–605.

Huang, H.-W., Mishra, S., & Raghunandan, K. (2007). Types of nonaudit fees and financial reporting quality. *Auditing: A Journal of Practice & Theory*, *26(1)*, 133–145.

IDW (ed.). (2012). *WP Handbuch 2012 – Wirtschaftsprüfung, Rechnungslegung, Beratung*. (Vol. I, 14th ed.). Düsseldorf: IDW Verlag.

Johnstone, K. M., & Bedard, J. C. (2001). Engagement planning, bid pricing, and client response in the market for initial attest engagements. *The Accounting Review*, *76(2)*, 199–220.

Kinney, W., Jr., Palmrose, J. C., & Scholz, S. (2004). Auditor independence, non-audit services, and restatements: was the U.S. government right? *Journal of Accounting Research*, *42(June)*, 561–588.

Knechel, W. R., Sharma, D. S., & Sharma, V. D. (2012). Non-Audit Services and Knowledge Spillovers: Evidence from New Zealand. *Journal of Business Finance & Accounting*, *39(1) & (2)*, 60–81.

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance Matched Discretionary Accruals Measures. *Journal of Accounting and Economics*, *39(1)*, 163–197.

Krauss, P., & Zülch, H. (2013). Non-audit services and audit quality: Blessing or curse? *The Journal of Applied Business Research*, 29(2), 305–325.

Krishnan, J., Sami, H., & Zhang, Y. (2005). Does the provision of nonaudit services affect investor perceptions of auditor independence? *Auditing: A Journal of Practice & Theory*, *26(2)*, 111–135.

Krishnan, J., & Visvanathan, G. (2011). Is there an association between earnings management and auditor-provided tax services? *Journal of the American Taxation Association*, *33(2)*, 111–135.

Kwon, S. Y., Park, J., & Yu, J. 2017. The Effect of Industry–Specialist Auditors on SEO Underpricing Before and After the Global Financial Crisis. *Auditing: A Journal of Practice & Theory, Forthcoming.*

Krishnan, J., Visvanathan, G., & Yu, W. (2013). Do auditor-provided tax services impair the value relevance of earning? *Journal of the American Taxation Association*, *35(1)*, 1–19.

La Porta, R., Lopez-de-Silanes, F., Sheifer, A., & Vishney, R. (1998). Law and finance. *Journal of Political Economy*, *106(6)*, 1113–1155.

La Porta, R., Lopez-de-Silanes, F., Sheifer, A., & Vishney, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics*, *58(1)*, 3–27.

Lai, K.-W., & Krishnan, G. V. (2009). Are non-audit services associated with firm value? Evidence from financial information system-related services. *Accounting and Finance*, *49*, 599–617.

Leuz, C., Nanda, D., & Wysocki, P. (2003). Earnings management and investor protection: An international comparison. *Journal of Financial Economics, 69(3)*, 505–27.

Lim, C.-Y., & Tan, H.-T. (2008). Non-audit services and audit quality: The impact of auditor specialization. *Journal of Accounting Research, 46(1)*, 199–246.

Lipe, R. C., Bryant, L., & Widener, S. K. (1998). Do nonlinearity, firm-specific coefficients, and losses represent distinct factors in the relation between stock returns and accounting earnings? *Journal of Accounting and Economics, 25(2)*, 195–214.

Lopatta, K., Kaspereit, T., Canitz, F., & Maas, T. (2015). Abschlussprüfung und Honorarabhängigkeit – Eine empirische Untersuchung der Auswirkungen auf die Unabhängigkeit des Abschlussprüfers. *Betriebswirtschaftliche Forschung und Praxis*, 67(5), 562–591.

Mishra S., Raghunandan, K., & Rama, D. V. (2005). Do investors' perceptions vary with types of nonaudit fees? Evidence from auditor ratification voting. *Auditing: A Journal of Practice & Theory, 24(2)*, 9–25.

Meuwissen, R., & Quick, R. (2009). Abschlussprüfung und Beratung – Eine experimentelle Analyse der Auswirkungen auf Unabhängigkeitswahrnehmungen deutscher Aufsichtsräte. *Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung*, *61*, 382–415.

O'Keefe, T. B., Simunic, D. A., & Stein, M. T. (1994). The Production of audit services: Evidence from a major public accounting firm. *Journal of Accounting Research*, *32(2)*, 241–261.

Quick, R., & Sattler, M. (2011). Beeinträchtigen Beratungsleistungen die Urteilsfreiheit des Abschlussprüfers? Zum Einfluss von Beratungshonoraren auf diskretionäre Periodenabgrenzungen. *Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung*, *63*, 310–343.

Quick, R. 2012. EC Green Paper Proposals and Audit Quality, *Accounting in Europe, 9(1)* (June), 17-38.

Quick, R., & Warming-Rasmussen, B. (2009). Auditor independence and the provision of non-audit services: Perceptions by German investors. *International Journal of Auditing*, 14(2), 141–162.

Quick, R., & Warming-Rasmussen, B. (2015). An experimental analysis of the effects of non-audit services on auditor independence in appearance in the European Union: Evidence from Germany. *Journal of International Financial Management & Accounting*. Forthcoming.

Ratzinger-Sakel, N. V. S. (2013). Auditor fees and auditor independence-Evidence from going concern reporting. *Auditing: A Journal of Practice & Theory, 32(4)*, 129–168.

Robinson, D. (2008). Auditor independence and auditor-provided tax services: Evidence from going-concern audit opinions prior to bankruptcy filings. *Auditing: A Journal of Practice & Theory, 27(2),* 31–54.

Ruddock, C., Taylor, S. J., & Taylor, S. L. (2006). Nonaudit services and earnings conservatism: Is auditor independence impaired? *Contemporary Accounting Research, 23(3),* 701–746.

Sattler, M. (2011). *Vereinbarkeit von Abschlussprüfung und Beratung*. Wiesbaden: Gabler Verlag/Springer Fachmedien.

Schmidt, S., & Feldmüller, C. (2014). Kommentierung zu § 323 HGB. In G. Förschle, B. Grottel, S. Schmidt, W. Schubert, & N. Winkeljohann (Eds.), *Beck'scher Bilanzkommentar*. (9th ed., pp. 2266-2307). München: C.H. Beck.

Securities and Exchange Commission (SEC). (2002). Proposed Rule: Strengthening the Commission's Requirements Regarding Auditor Independence. Release Nos. 33-8154; 34-46934. Washington, D.C.: SEC. Available at: http: / / www.sec.gov/ rules /proposed/33-8154.htm.

Securities and Exchange Commission (SEC). (2003). Disclosure Required by Sections 406 and 407 of the Sarbanes-Oxley Act of 2002. Release Nos. 33-8177; 34-47235. Washington, D.C.: SEC. Available at: http: / /www.sec.gov/ rules /final/33-8177.htm.

Seetharaman, A., Sun, Y., & Wang, W. (2011). Tax-related financial statement restatements and auditor-provided tax services. *Journal of Accounting, Auditing & Finance, 26(4),* 677–698.

Sharma, D. S. (2014). Non-Audit Services and Auditor Independence. In D. Hay, W. R. Knechel, & M. Willekens (Eds.), *Routledge Companion to Auditing*, 67–88.

Sikka, P. (2009). Financial Crisis and the Silence of the Auditors. *Accounting, Organizations and Society, 34(6-7),* 868-873.

Simunic, D. A. (1984). Auditing, consulting, and auditor independence. *Journal of Accounting Research, 22(2),* 679–702.

Wirtschaftsprüferkammer. (2014). Bericht der Berufsaufsicht 2013 über Wirtschaftsprüfer und vereidigte Buchprüfer.
Available at: http://www.wpk.de/uploads/tx_templavoila/WPK_Berufsaufsicht_2013.pdf

Wooldridge, J. M. (2009). *Introductory Econometrics: A Modern Approach*. 4th Edition. Cincinnati, OH: South-Western.

Zaman M., Hudaib, M., & Haniffa, R. (2011). Corporate governance quality, audit fees and non-Audit services fees. *Journal of Business Finance & Accounting, 38(1) & (2),* 165–197.

Zhang, B., & Emanuel, D. (2008). The provision of non-audit services and earnings conservatism: Do New Zealand auditors compromise their independence? *Accounting Research Journal, 21(2),* 195–221.

TABLE 1: Sample Selection and Variable Definitions

Panel A: Sample Selection on the Frankfurt Stock Exchange

		Company-year observations
	Available company-year observations 2005 - 2015	**5,632**
-	Financial company-year observations	927
=	**Non-financial company-year observations**	**4,705**
-	Missing observations	1,173
-	Excluded observations for other reasons	809
=	**Selected sample**	**2,723**
	Number of companies involved in the selected sample	379

Panel B: Definition of Variables

Variable	Definition
RETURN	Stock market return for company j (=1, 2, ….., 379) in year t (= 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015). RETURN is adjusted for dividends paid and calculated from 8 months before to 4 months after the end of fiscal year t.
EARN	Reported net income of company j for fiscal year t divided by the market value of equity 8 months before the end of fiscal year t.
NAF	Ratio of non-audit fee to total auditor fee of company j for fiscal year t.
NAF1	Ratio of other assurance services (than audit) fee to total auditor fee of company j for fiscal year t.
NAF2	Ratio of tax services fee to total auditor fee of company j for fiscal year t.
NAF3	Ratio of other services fee (non-audit fee-other assurance services fee-tax services fee) to total auditor fee of company j for fiscal year t.
LEV	Total liabilities divided by total assets of company j for fiscal year t.
STDRET	Standard deviation of monthly stock returns of company j calculated using 30 months before the end of fiscal year t.
MBV	Market value of equity divided by book value of equity of company j at the end of fiscal year t.
LOSS	Indicator variable, coded as 1 if earnings are negative for company j for fiscal year t, and 0 otherwise.
SIZE	Natural logarithm of market value of equity of company j at the end of fiscal year t.
BIG4	Indicator variable, coded as 1 if a company is audited by a Big 4 auditor, and 0 otherwise.
YEAR	Set of year dummies, coded as 1 for the respective year, and 0 otherwise.
INDUSTRY	Set of industry dummies, coded as 1 for the respective DAX sector of the Frankfurt Stock Exchange, and 0 otherwise.

TABLE 2: Descriptive Statistics and Correlation Matrix for 2005-2015

Panel A: Descriptive Statistics for the Sample

Variable	Obs.	Mean	Std. Dev.	First Quartile	Median	Third Quartile
RETURN	2,723	0.143	0.571	-0.186	0.057	0.358
EARN	2,723	0.019	0.500	0.002	0.051	0.089
NAF	2,723	0.279	0.202	0.111	0.258	0.423
NAF1	2,723	0.087	0.131	0	0.016	0.133
NAF2	2,723	0.087	0.127	0	0.019	0.140
NAF3	2,723	0.105	0.137	0	0.052	0.167
LEV	2,723	0.623	1.990	0.392	0.558	0.687
STDRET	2,723	0.114	0.060	0.074	0.100	0.137
MBV	2,723	1.964	56.708	0.994	1.616	2.597
LOSS	2,723	0.240	0.427	0	0	0
SIZE	2,723	5.404	2.233	3.694	5.050	6.905
BIG4	2,723	0.658	0.475	0	1	1

Panel B: Pearson Correlation Matrix

Variable	***RETURN***	***EARN***	***NAF***	***NAF1***	***NAF2***	***NAF3***	***LOSS***
EARN	0.154***						
	(0.000)						
NAF	-0.016	0.033*					
	(0.392)	(0.084)					
NAF1	-0.057***	-0.001	0.493***				
	(0.003)	(0.959)	(0.000)				
NAF2	0.026	-0.004	0.493***	-0.118***			
	(0.175)	(0.836)	(0.000)	(0.000)			
NAF3	0.006	0.054***	0.546***	-0.119***	-0.088***		
	(0.764)	(0.005)	(0.000)	(0.000)	(0.000)		
LOSS	-0.181***	-0.385***	-0.016	0.038**	-0.078***	0.012	
	(0.000)	(0.000)	(0.401)	(0.045)	(0.000)	(0.522)	
BIG4	-0.004	0.033*	0.099***	0.109***	-0.016	0.056***	-0.046**
	(0.833)	(0.087)	(0.000)	(0.000)	(0.413)	(0.003)	(0.017)

*, **, *** Indicates significance at the 10 percent, 5 percent, and 1 percent levels, respectively (two-tailed). The values in parentheses are the respective p-values. The correlation coefficients are based on the sample of 2,723 company-year observations; see Table 1, Panel A. The variables are defined in Panel B of Table 1.

TABLE 3: Regression Results for 2005-2015

	Impact of NAF on ERC		Impact of Components of NAF on ERC	
Variable	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**
Intercept	-0.416***	-8.022	-0.434***	-8.303
EARN	0.238**	2.488	0.281***	2.799
NAF	-0.105**	-2.167		
NAF1	-		-0.261***	-3.365
NAF2			-0.007	-0.092
NAF3			-0.072	-1.029
EARN · NAF	-0.025	-0.298		
EARN · NAF1			-0.136	-0.657
EARN · NAF2			0.229	1.482
EARN · NAF3			-0.133	-1.153
LEV	-0.002	-0.339	-0.003	-0.627
STDRET	1.747***	9.271	1.793***	9.462
MBV	0.001**	2.390	0.001**	2.361
LOSS	-0.241***	-9.387	-0.233	-8.921
SIZE	0.030***	5.106	0.032***	5.513
BIG4	-0.020	-0.915	-0.021	-0.974
EARN · LEV	0.001	0.223	0.000	-0.070
EARN · STDRET	0.139	0.765	0.057	0.297
EARN · MBV	0.001	1.119	0.001	1.111
EARN · LOSS	-0.144***	-2.724	-0.176***	-3.129
EARN · SIZE	-0.023*	-1.915	-0.027**	-2.210
EARN · BIG4	0.007	0.149	0.029	0.577
YEAR	Included		Included	
INDUSTRY	Included		Included	
Adjusted R^2	0.298		0.300	
F-statistics	30.636***		28.108***	
N	2,723		2,723	

*, **, *** Indicates significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

TABLE 4: Descriptive Statistics and Correlation Matrix for the Sub-Sample Periods 2005-2007, 2008-2009, and 2010-2015

Panel A: Descriptive Statistics for the Sub-Sample Periods

Descriptive Statistics for 2005-2007: Pre-Financial Crisis Period

Variable	Obs.	Mean	Std. Dev.	First Quartile	Median	Third Quartile
RETURN	769	0.168	0.621	-0.181	0.057	0.379
EARN	769	0.038	0.351	0.008	0.052	0.085
NAF	769	0.315	0.195	0.150	0.296	0.446
NAF1	769	0.092	0.142	0	0.014	0.138
NAF2	769	0.101	0.131	0	0.042	0.162
NAF3	769	0.121	0.147	0	0.065	0.194
LEV	769	0.532	0.234	0.369	0.562	0.679
STDRET	769	0.115	0.062	0.075	0.099	0.137
MBV	769	2.902	16.125	1.111	1.786	2.895
LOSS	769	0.220	0.414	0	0	0
SIZE	769	5.117	2.112	3.505	4.771	6.500
BIG4	769	0.609	0.488	0	1	1

Descriptive Statistics for 2008-2009: Financial Crisis Period

Variable	Obs.	Mean	Std. Dev.	First Quartile	Median	Third Quartile
RETURN	504	0.109	0.755	-0.395	-0.059	0.459
EARN	504	-0.054	0.578	-0.066	0.048	0.095
NAF	504	0.278	0.192	0.117	0.257	0.412
NAF1	504	0.090	0.132	0	0.021	0.139
NAF2	504	0.089	0.127	0	0.025	0.146
NAF3	504	0.099	0.131	0	0.042	0.170
LEV	504	0.554	0.278	0.374	0.564	0.686
STDRET	504	0.139	0.058	0.102	0.132	0.166
MBV	504	1.605	2.553	0.735	1.204	1.971
LOSS	504	0.321	0.468	0	0	1
SIZE	504	5.022	2.214	3.381	4.717	6.341
BIG4	504	0.653	0.477	0	1	1

Descriptive Statistics for 2010-2015: Post-Financial Crisis Period

Variable	Obs.	Mean	Std. Dev.	First Quartile	Median	Third Quartile
RETURN	1,450	0.142	0.459	-0.120	0.077	0.322
EARN	1,450	0.035	0.535	0.007	0.051	0.090
NAF	1,450	0.261	0.206	0.079	0.240	0.409
NAF1	1,450	0.082	0.124	0	0.014	0.130
NAF2	1,450	0.080	0.124	0	0.003	0.122
NAF3	1,450	0.099	0.133	0	0.047	0.153
LEV	1,450	0.695	2.715	0.406	0.552	0.691
STDRET	1,450	0.105	0.0564	0.069	0.092	0.123
MBV	1,450	1.591	76.813	1.053	1.717	2.670
LOSS	1,450	0.223	0.416	0	0	0
SIZE	1,450	5.689	2.265	3.977	5.304	7.252
BIG4	1,450	0.686	0.465	0	1	1

Table 4 (continued)

Panel B: Correlation Matrix for the Sub-Sample Periods

Pearson Correlation Matrix for 2005-2007: Pre-Financial Crisis Period

Variable	*RETURN*	*EARN*	*NAF*	*NAF1*	*NAF2*	*NAF3*	*LOSS*
EARN	0.152***						
	(0.000)						
NAF	-0.045	0.056					
	(0.213)	(0.119)					
NAF1	-0.099***	-0.046	0.461***				
	(0.006)	(0.207)	(0.000)				
NAF2	0.013	0.025	0.432***	-0.166***			
	(0.716)	(0.494)	(0.000)	(0.000)			
NAF3	0.024	0.097***	0.497***	-0.206***	-0.157***		
	(0.498)	(0.007)	(0.000)	(0.000)	(0.000)		
LOSS	-0.209***	-0.396***	0.053	0.075**	-0.092***	0.081**	
	(0.000)	(0.000)	(0.140)	(0.038)	(0.010)	(0.025)	
BIG4	-0.008	0.038	0.016	0.073**	-0.067*	0.011	-0.031
	(0.823)	(0.297)	(0.651)	(0.042)	(0.062)	(0.760)	(0.387)

Pearson Correlation Matrix for 2008-2009: Financial Crisis Period

Variable	*RETURN*	*EARN*	*NAF*	*NAF1*	*NAF2*	*NAF3*	*LOSS*
EARN	0.154***						
	(0.001)						
NAF	-0.020	0.012					
	(0.661)	(0.791)					
NAF1	-0.017	0.054	0.490***				
	(0.705)	(0.230)	(0.000)				
NAF2	0.014	-0.015	0.500***	-0.126***			
	(0.759)	(0.743)	(0.000)	(0.005)			
NAF3	-0.025	-0.022	0.491***	-0.167***	-0.110**		
	(0.575)	(0.614)	(0.000)	(0.000)	(0.014)		
LOSS	-0.054	-0.475***	-0.018	-0.026	-0.076*	0.073	
	(0.229)	(0.000)	(0.688)	(0.566)	(0.090)	(0.101)	
BIG4	0.039	0.033	0.074*	0.119***	-0.045	0.031	0.047
	(0.382)	(0.457)	(0.099)	(0.007)	(0.316)	(0.484)	(0.294)

Pearson Correlation Matrix for 2010-2015: Post-Financial Crisis Period

Variable	*RETURN*	*EARN*	*NAF*	*NAF1*	*NAF2*	*NAF3*	*LOSS*
EARN	0.167***						
	(0.000)						
NAF	-0.002	0.033					
	(0.940)	(0.203)					
NAF1	-0.049*	-0.004	0.515***				
	(0.065)	(0.891)	(0.000)				
NAF2	0.041	-0.010	0.517***	-0.091***			
	(0.116)	(0.700)	(0.000)	(0.001)			
NAF3	0.004	0.065**	0.587***	-0.049*	-0.048*		
	(0.889)	(0.014)	(0.000)	(0.064)	(0.070)		
LOSS	-0.244***	-0.345***	-0.049*	0.041	-0.074***	-0.046*	
	(0.000)	(0.000)	(0.060)	(0.117)	(0.005)	(0.078)	
BIG4	-0.023	0.032	0.168***	0.134***	0.035	0.103***	-0.091***
	(0.373)	(0.221)	(0.000)	(0.000)	(0.181)	(0.000)	(0.001)

*, **, *** Indicates significance at the 10 percent, 5 percent, and 1 percent levels, respectively (two-tailed). The values in parentheses are the respective p-values. The variables are defined in Panel B of Table 1.

TABLE 5: Regression Results for the Sub-Sample Periods 2005-2007, 2008-2009, and 2010-2015

Panel A: Regression Results: Impact of NAF on ERC

	Pre-Crisis (2005-2007)		Crisis (2008-2009)		Post-Crisis (2010-2015)	
Variable	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**
Intercept	-0.532***	-5.047	-1.011***	-8.954	0.037	0.654
EARN	1.092**	2.492	0.606**	2.241	0.483***	3.622
NAF	-0.171*	-1.755	0.048	0.404	-0.071	-1.240
EARN · NAF	-1.179***	-2.973	-0.450**	-2.007	0.259**	2.425
LEV	0.002	0.021	-0.043	-0.399	-0.003	-0.689
STDRET	1.750***	4.925	2.631***	5.990	1.361***	5.524
MBV	0.006***	2.842	0.038***	2.713	0.00009	0.380
LOSS	-0.120**	-1.998	-0.159***	-2.609	-0.264***	-8.283
SIZE	0.056***	4.475	0.016	1.103	0.015**	2.174
BIG4	-0.036	-0.821	0.027	0.523	-0.021	-0.830
EARN · LEV	-0.365	-1.559	-0.030	-0.421	-0.001	-0.573
EARN · STDRET	-1.266	-1.240	4.513***	7.070	-0.346	-1.590
EARN · MBV	0.026*	1.725	-0.057**	-2.303	0.000	-0.573
EARN · LOSS	-0.098	-0.467	-1.030***	-6.874	-0.120*	-1.845
EARN · SIZE	0.028	0.454	-0.048	-1.409	-0.051***	-3.061
EARN · BIG4	0.071	0.381	-0.157	-1.457	-0.146**	-2.238
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adjusted R^2	0.335		0.589		0.195	
F-statistics	13.506***		25.033***		11.351***	
N	769		504		1,450	

Panel B: Regression Results: Impact of Components of NAF on ERC

	Pre-Crisis (2005-2007)		Crisis (2008-2009)		Post-Crisis (2010-2015)	
Variable	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**
Intercept	-0.569***	-5.370	-1.026***	-8.995	0.117*	1.870
EARN	1.123**	2.370	0.652**	2.421	0.512***	3.787
NAF1	-0.443***	-3.129	-0.005	-0.030	-0.174*	-1.720
NAF2	-0.036	-0.236	0.284	1.589	-0.034	-0.378
NAF3	-0.004	-0.026	-0.159	-0.873	-0.038	-0.442
EARN · NAF1	-1.218**	-2.195	-1.050**	-2.198	0.024	0.093
EARN · NAF2	-2.501***	-2.923	0.112	0.342	0.486***	2.688
EARN · NAF3	-1.230***	-2.621	-0.670**	-2.517	0.181	1.026
LEV	-0.008	-0.087	-0.035	-0.326	-0.005	-0.916
STDRET	1.883***	5.266	2.702***	6.048	1.385***	5.609
MBV	0.005***	2.500	0.036***	2.582	0.00008	0.352
LOSS	-0.114*	-1.908	-0.141**	-2.267	-0.258***	-7.991
SIZE	0.060***	4.756	0.016	1.085	0.017**	2.457
BIG4	-0.037	-0.849	0.027	0.537	-0.024	-0.933
EARN · LEV	-0.333	-1.420	-0.018	-0.251	-0.002	-0.860
EARN · STDRET	-0.880	-0.759	4.433***	6.933	-0.410*	-1.830
EARN · MBV	0.032**	2.101	-0.059**	-2.301	0.000	-0.589
EARN · LOSS	-0.189	-0.812	-1.099***	-7.062	-0.141**	-2.061
EARN · SIZE	0.065	0.932	-0.051	-1.438	-0.051***	-3.065
EARN · BIG4	-0.085	-0.408	-0.070	-0.586	-0.137**	-2.086
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adjusted R^2	0.341		0.594		0.196	
F-statistics	12.362***		22.612***		10.273***	
N	769		504		1,450	

*, **, *** Indicates significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

TABLE 6: Alternative Model Specification with Additional Control Variables

Panel A: Regression Results: Impact of NAF on ERC

	Pre-Crisis (2005-2007)		Crisis (2008-2009)		Post-Crisis (2010-2015)	
Variable	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**
Intercept	-0.532***	-4.987	-0.991***	-8.666	0.138**	2.237
EARN	1.170***	2.618	0.741**	2.480	0.535***	3.865
NAF	-0.165*	-1.672	0.053	0.437	-0.073	-1.262
EARN · NAF	-1.139***	-2.845	-0.385	-1.616	0.263**	2.474
LEV	0.009	0.101	-0.064	-0.593	-0.004	-0.710
STDRET	1.758***	4.926	2.638***	5.986	1.320***	5.361
MBV	0.006***	2.821	0.045***	3.172	0.0001	0.440
LOSS	-0.108*	-1.772	-0.164***	-2.699	-0.238***	-7.282
SIZE	0.055***	4.312	0.011	0.773	0.012*	1.807
BIG4	-0.041	-0.868	0.012	0.225	-0.028	-1.029
AUDITOR CHANGE	-0.025	-0.366	-0.031	-0.350	-0.064	-1.473
INDUSTRY LEADER	0.009	0.185	0.054	0.927	0.010	0.351
EARN · LEV	-0.364	-1.549	-0.035	-0.478	-0.002	-0.636
EARN · STDRET	-1.409	-1.364	4.374***	6.779	-0.431*	-1.925
EARN · MBV	0.026*	1.714	-0.038	-1.430	0.000	-0.520
EARN · LOSS	-0.113	-0.540	-1.138***	-7.288	-0.133*	-1.955
EARN · SIZE	0.009	0.132	-0.056	-1.573	-0.054***	-3.194
EARN · BIG4	0.033	0.175	-0.296**	-2.457	-0.166**	-2.516
EARN · AUDITOR CHANGE	0.085	0.272	-0.191	-1.148	-0.017	-0.291
EARN · INDUSTRY LEADER	0.307	0.910	0.295**	2.273	0.476***	3.004
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adjusted R^2	0.333		0.592		0.200	
F-statistics	11.956***		22.433***		10.541***	
N	769		504		1,450	

Panel B: Regression Results: Impact of components of NAF on ERC

	Pre-Crisis (2005-2007)		Crisis (2008-2009)		Post-Crisis (2010-2015)	
Variable	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**
Intercept	-0.573***	-5.338	-1.019***	-8.833	0.128**	2.047
EARN	1.248***	2.570	1.007***	3.254	0.576***	4.099
NAF1	-0.447***	-3.139	0.019	0.102	-0.167*	-1.649
NAF2	-0.020	-0.133	0.256	1.432	-0.047	-0.519
NAF3	0.007	0.052	-0.182	-0.994	-0.033	-0.386
EARN · NAF1	-1.119**	-1.992	-1.102**	-2.082	-0.069	-0.239
EARN · NAF2	-2.494***	-2.897	0.286	0.850	0.483***	2.672
EARN · NAF3	-1.217***	-2.581	-0.913***	-2.919	0.241	1.254
LEV	0.001	0.009	-0.035	-0.322	-0.005	-0.952
STDRET	1.902***	5.296	2.703***	6.053	1.342***	5.434
MBV	0.005**	2.449	0.045***	3.164	0.00009	0.413
LOSS	-0.099	-1.626	-0.136**	-2.200	-0.234***	-7.072
SIZE	0.060***	4.616	0.011	0.772	0.015**	2.074
BIG4	-0.042	-0.884	0.016	0.289	-0.030	-1.102
AUDITOR CHANGE	-0.034	-0.497	-0.023	-0.263	-0.066	-1.533
INDUSTRY LEADER	0.006	0.121	0.046	0.786	0.010	0.355
EARN · LEV	-0.329	-1.396	-0.064	-0.863	-0.002	-0.961
EARN · STDRET	-1.117	-0.950	4.107***	6.322	-0.507**	-2.213
EARN · MBV	0.032**	2.112	-0.038	-1.430	0.000	-0.545
EARN · LOSS	-0.223	-0.954	-1.216***	-7.571	-0.156**	-2.231
EARN · SIZE	0.038	0.522	-0.074**	-1.978	-0.056***	-3.255
EARN · BIG4	-0.133	-0.629	-0.191	-1.382	-0.155**	-2.331
EARN · AUDITOR CHANGE	0.100	0.318	-0.466**	-2.397	-0.042	-0.598
EARN · INDUSTRY LEADER	0.392	1.156	0.159	1.142	0.467***	2.947
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adjusted R^2	0.339		0.598		0.200	
F-statistics	11.117***		20.652***		9.650***	
N	769		504		1,450	

*, **, *** Indicates significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

TABLE 7: Alternative Non-Audit Fee Variable Definitions

Panel A: Regression Results: Return-Earnings Regressions with Scaled NAF as Test Variable

	Pre-Crisis (2005-2007)		Crisis (2008-2009)		Post-Crisis (2010-2015)	
Variable	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**
Intercept	-0.528***	-5.008	-0.973***	-8.655	0.059	1.042
EARN	0.743*	1.844	0.482*	1.922	0.497***	3.550
NAF	-12.833**	-2.260	-8.005	-1.618	-16.056***	-3.076
EARN · NAF	-12.891**	-2.123	-4.798*	-1.899	-9.027**	-1.965
LEV	0.031	0.350	-0.020	-0.184	-0.002	-0.366
STDRET	1.761***	4.958	2.703***	6.174	1.375***	5.599
MBV	0.005**	2.483	0.036**	2.559	0.00008	0.370
LOSS	-0.117*	-1.935	-0.145**	-2.321	-0.252***	-7.825
SIZE	0.044***	3.341	0.010	0.684	0.008	1.202
BIG4	-0.018	-0.418	0.035	0.682	-0.016	-0.615
EARN · LEV	-0.275	-1.201	-0.003	-0.041	-0.001	-0.246
EARN · STDRET	-1.426	-1.356	4.579***	7.183	-0.402*	-1.797
EARN · MBV	0.031**	2.108	-0.061**	-2.404	0.000	-0.611
EARN · LOSS	-0.040	-0.194	-0.986***	-6.542	-0.076	-1.149
EARN · SIZE	0.016	0.240	-0.049	-1.338	-0.043***	-2.607
EARN · BIG4	0.034	0.182	-0.173	-1.543	-0.119*	-1.833
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adjusted R^2	0.333		0.589		0.197	
F-statistics	13.393***		24.979***		11.435***	
N	769		504		1,450	

Panel B: Regression Results: Return-Earnings Regressions with Un-scaled NAF as Test Variable

	Pre-Crisis (2005-2007)		Crisis (2008-2009)		Post-Crisis (2010-2015)	
Variable	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**
Intercept	-0.577***	-5.419	-0.992***	-8.705	0.023	0.403
EARN	0.430	1.251	0.218	1.161	0.505***	3.660
NAF	0.030	1.109	0.002	0.128	-0.008	-1.221
EARN · NAF	-0.631**	-2.512	-0.110	-1.001	0.037	1.278
LEV	0.009	0.103	-0.042	-0.385	-0.001	-0.275
STDRET	1.742***	4.900	2.677***	6.096	1.327***	5.382
MBV	0.005***	2.756	0.040***	2.907	0.00009	0.376
LOSS	-0.123**	-2.037	-0.181***	-3.003	-0.261***	-8.126
SIZE	0.054***	4.055	0.015	1.027	0.015**	2.083
BIG4	-0.029	-0.673	0.027	0.531	-0.024	-0.916
EARN · LEV	-0.252	-1.100	0.049	0.829	-0.001	-0.212
EARN · STDRET	-1.405	-1.327	4.783***	7.627	-0.400*	-1.813
EARN · MBV	0.027*	1.817	-0.052**	-2.125	0.000	-0.629
EARN · LOSS	0.073	0.377	-1.007***	-6.715	-0.107	-1.639
EARN · SIZE	0.101*	1.687	-0.024	-0.719	-0.047***	-2.741
EARN · BIG4	0.007	0.040	-0.108	-1.027	-0.126*	-1.942
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adjusted R^2	0.331		0.586		0.193	
F-statistics	13.244***		24.747***		11.167***	
N	769		504		1,450	

Table 7 (continued)

Panel C: Regression Results: Return-Earnings Regressions with Natural Logarithm of NAF as Test Variable

	Pre-Crisis (2005-2007)		Crisis (2008-2009)		Post-Crisis (2010-2015)	
Variable	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**	**Coefficient**	**t-statistics**
Intercept	-0.399**	-2.563	-1.024***	-8.188	0.039	0.678
EARN	4.143***	4.579	0.223	0.738	0.453***	3.266
NAF	-0.027*	-1.805	0.006	0.715	-0.001	-0.241
EARN · NAF	-0.321***	-4.680	-0.001	-0.042	0.002	0.260
LEV	0.046	0.515	-0.052	-0.479	-0.002	-0.308
STDRET	1.689***	4.813	2.661***	6.057	1.339***	5.431
MBV	0.006***	3.095	0.042***	2.985	0.00009	0.389
LOSS	-0.082	-1.362	-0.177***	-2.871	-0.266***	-8.336
SIZE	0.071***	4.890	0.009	0.597	0.013*	1.788
BIG4	-0.039	-0.897	0.025	0.490	-0.023	-0.902
EARN · LEV	-0.211	-0.936	0.041	0.431	-0.001	-0.218
EARN · STDRET	-1.774*	1.735	4.798***	7.633	-0.342	-1.457
EARN · MBV	0.019	1.267	-0.049*	1.935	0.000	-0.576
EARN · LOSS	-0.342	-1.601	-1.000***	-6.438	-0.097	-1.480
EARN · SIZE	0.124**	2.080	-0.029	-0.873	-0.040**	-2.418
EARN · BIG4	0.099	0.549	-0.106	-0.995	-0.123*	-1.894
YEAR	Included		Included		Included	
INDUSTRY	Included		Included		Included	
Adjusted R^2	0.348		0.586		0.191	
F-statistics	14.244***		24.699***		11.082***	
N	769		504		1,450	

*, **, *** Indicates significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

The Norwegian School of Economics (NHH) is one of the leading business schools in Scandinavia, and is students' number one choice for a business education in Norway. The School's **Department of Accounting, Auditing and Law** is an ambitious and thriving environment for research and learning. Our faculty has three main research and teaching areas: Financial Accounting and Auditing, Management Accounting and Control, and Economics, Ethics and Law. For details, see the School's website: www.nhh.no.